

Raymond R. Wile

R. R. Wile  
1976

U. S. Circuit Court. Southern District of New York.

|                               |   |                |
|-------------------------------|---|----------------|
| American Graphophone Company  | ) |                |
|                               | ) | In Equity      |
| versus                        | ) | No. 8055 on    |
|                               | ) | Patent 341,214 |
| The Universal Talking Machine | ) |                |
| Manufacturing Company         | ) |                |

APPEAL RECORD  
DOCUMENTARY EXHIBITS

U. S. Circuit Court of Appeals for the Second Circuit.

|                               |   |          |
|-------------------------------|---|----------|
| American Graphophone Company  | ) |          |
|                               | ) |          |
| versus                        | ) | No. 1768 |
|                               | ) |          |
| The Universal Talking Machine | ) |          |
| Manufacturing Company         | ) |          |

BRIEF FOR COMPLAINANT--APPELLEE

Electrostatic copies  
of originals at the  
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FRC -- Bayonne, N.J.



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United States Circuit Court of Appeals  
FOR THE SECOND CIRCUIT

THE AMERICAN GRAPHOPHONE COMPANY  
*Complainant-Appellee*

THE UNIVERSAL TALKING MACHINE MANUFACTURING  
COMPANY  
*Defendant-Appellant*

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TRANSCRIPT OF RECORD

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR  
THE SOUTHERN DISTRICT OF NEW YORK

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PRINTED UNDER THE DIRECTION OF THE CLERK

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THE PRESIDENT OF THE UNITED STATES 1  
OF AMERICA

TO UNIVERSAL TALKING MACHINE MANUFACTURING  
COMPANY, GREETING:

[L. S.]

YOU ARE HEREBY COMMANDED that you personally  
appear before the Judges of the Circuit Court of the  
United States of America for the Southern District  
of New York, in the Second Circuit, in Equity, on  
the first Monday of May, A. D. 1902, wherever the  
said Court shall then be, to answer a bill of com-  
plaint exhibited against you in the said Court by 2  
American Graphophone Company, and do further  
and receive what the said Court shall have considered  
in that behalf. And this you are not to omit under  
the penalty on you of two hundred and fifty dollars.

Witness, the Honorable MELVILLE W. FULLER,  
Chief Justice of the United States, at the Borough  
of Manhattan, in the City of New York, on the 19th  
day of March, in the year of our Lord one thousand  
nine hundred and two, and of the Independence of  
the United States of America the one hundred and  
twenty-sixth.

JOHN A. SHIELDS, 3  
Clerk.

ELISHA K. CAMP,  
Solicitor for Complainant.

The defendant is required to enter appearance in  
the above cause, in the Clerk's office of this Court.



4 on or before the first Monday of May, 1902, or the  
bill will be taken *pro confesso* against it.

J. A. S.,  
Clerk.

(Endorsed)—I hereby certify, That on the 19th day  
of March, 1902, at the City of New York, in my  
district, I served the within Subpoena in Equity  
upon the within-named defendant Universal  
Talking Machine Manufacturing Company by  
exhibiting to J. A. McNabbas, General Man-  
ager of said Co., doing business at No. 23 East  
20th St., New York City, the within original  
and at the same time leaving with him a copy  
thereof.—Wm. Henkel, United States Marshal,  
Southern District of New York.—Dated Mar.  
5 20, 1902.—U. S. Circuit Court, Southern Dis-  
trict of New York.—Filed Mar. 20, 1902.—John  
A. Shields, Clerk.

### Bill of Complaint.

#### On Sound Record.

TO THE HONORABLE THE JUDGES OF THE CIRCUIT  
COURT OF THE UNITED STATES FOR THE SOUTH-  
ERN DISTRICT OF NEW YORK.

The American Graphophone Company, a corpora-  
tion created and existing under and by virtue of the  
6 laws of the State of West Virginia, and having its  
principal office at Washington City, in the District  
of Columbia, brings this, its bill of complaint,  
against the Universal Talking Machine Manufactur-  
ing Company, a corporation created and existing  
under and by virtue of the laws of the State of New  
York, at No. 23 East Twentieth street, in the Bor-  
ough of Manhattan.

And thereupon your orator complains and says:

1.

That Chichester A. Bell and Sumner Tainter, then  
of Washington aforesaid, were the original, first

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A. S.,  
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Company by  
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Dated Mar.  
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1902.—John

THE CIRCUIT  
THE SOUTH-

a corpora-  
virtue of the  
having its  
the District  
complaint,  
Manufactur-  
and existing  
state of New  
in the Bor-  
and says:

Tainter, then  
original, first

and joint inventors of certain new and useful im-  
provements in recording and reproducing speech and  
other sounds, which improvements were not known  
or used by others in this country before their inven-  
tion thereof, and were not patented or described  
in any printed publication in this or any foreign  
country before their invention or discovery thereof,  
and were not in public use or on sale in the United  
States for more than two years prior to their appli-  
cation for a patent therefor, and which had not been  
abandoned.

2.

That thereafter the said Chichester A. Bell and  
Sumner Tainter made application in due form of  
law to the Commissioner of Patents for the grant  
of Letters Patent of the United States for the said  
invention, and then and there fully complied in all  
respects with the provisions and requirements of the  
laws of the United States in such case made and pro-  
vided; that thereupon, due proceedings being had  
upon said application, Letters Patent of the United  
States, in due form of law, were issued and delivered  
to the said Chichester A. Bell and Sumner Tainter,  
in the name of the United States of America, under  
the seal of the Patent Office, and signed and coun-  
tersigned respectively by the proper officers of the  
United States, numbered 341,214, and dated May 4,  
1886; and that the said Letters Patent did grant to  
the said Chichester A. Bell and Sumner Tainter,  
their heirs or assigns, for a term of seventeen years  
from the said 4th day of May, 1886, the exclusive right  
to make, use and vend the said invention through-  
out the United States and the Territories thereof, as  
by reference to the said Letters Patent or a duly au-  
thenticated copy thereof, here in court to be pro-  
duced, will more fully and at large appear.

3.

And your orator further shows that on the 29th  
day of March, 1887, said Chichester A. Bell and



- 10 Sumner Tainter, by an instrument in writing duly signed and delivered, and recorded in the United States Patent Office the 22d day of September, 1887, did give, grant and convey to the Volta Graphophone Company, a corporation organized and existing under the laws of the State of Virginia, its successors and assigns, the entire right, title and interest in and to said Letters Patent No. 341,214, granted to them as aforesaid, and in and to the invention secured thereby, as by reference to said instrument or a duly authenticated copy thereof, here in court to be produced, will more fully and at large appear.

## 4.

- 11 That on the 24th day of January, 1893, the said Volta Graphophone Company, by an instrument in writing, duly signed, sealed and delivered and recorded in the United States Patent Office the 25th day of January, 1893, did give, grant, assign, and convey to your orator, its successors and assigns, the entire right, title and interest in and to the invention secured thereby, as by reference to said instrument or a duly authenticated copy thereof, here in court to be produced, will more fully and at large appear.

## 5.

- 12 That your orator has been ever since the date of the assignment last mentioned, and was at the time of the commission of the acts hereinafter complained of, and is now, the sole and exclusive owner of the said Letters Patent and of all claims for infringement thereof; and has been and is, save for the doings of this defendant, and others acting in concert with it, in the exclusive possession of said Letters Patent and of all claims for infringement thereof; and has been and is, save for the doings of this defendant and others acting in concert with it in the exclusive possession of said rights and privileges; and is entitled to the exclusive use, benefits, and advantages of the said invention and



improvements, and to sue for and recover to its own use and in its own name all claims for the infringement or violation thereof. 13

## 6.

And your orator further shows that it has expended large sums of money in practicing said inventions and introducing the same into public use, and the same is of great commercial value and practical utility; that a great public interest has been manifested therein, and a large demand created for apparatus constructed in accordance with or embodying the same, which demand your orator is ready and able to supply; that the public generally in all parts of the United States have recognized and acquiesced in the facts that the said Bell and Tainter were the original, first and joint inventors of the said invention, and that the patent above named is a good and valid patent; that the public have also acknowledged the claims of your orator to the exclusive right to said invention under said patent; and that, but for the infringement and wrongs hereinafter complained of, your orator would now be in the peaceful possession and enjoyment of the said Letters Patent and invention, and of the income derivable therefrom. 14

## 7

And your orator further shows, upon information and belief, that your orator and all persons making under authority of your orator apparatus for recording and reproducing sounds and sound-records, employing, embodying, and operating or made in accordance with, the invention described and claimed in the Letters Patent aforesaid, have given notice to the public that the same are patented, and have affixed thereto the word "Patented," together with the day and year the said patent was granted; and your orator further shows that the said defendant was duly notified of its infringement hereinafter complained of, but refused to desist therefrom and still continues so to do. 15



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8.

And your orator shows that its said patent in suit discloses and claims, among other things, the three following inventions: First, as a new article, an engraved sound-record or a sound record in wax-like material (set forth by claims 7, 10, 11, 12, 14, 17, 18 and 45 thereof); second, recording or engraving apparatus and devices, for cutting upon a wax-like tablet to produce sound records (set forth by claims 3, 4, 5, 6, 11, 13, 30, 31, 32, 33, 34 and 35 thereof); and third, the method or step or process of producing said sound records by engraving or cutting or removing the material of the tablet in chips or shavings to produce a record-groove having irregularities corresponding to sound-waves (set forth by

17

9.

And your orator shows that its said patent has been before various Circuit Courts of the United States and has been uniformly sustained. Among others in the United States Circuit Court for New Jersey in a suit against Edison Phonograph Works, in which, after full proofs taken, the defendant consented to a final decree upholding the validity of the patent in all respects and awarding an injunction, the defendant thereupon accepting a license; in the United States Circuit Court for the Northern District of Illinois against Amet, in which the claims relating to the sound-record were sustained (74 Fed. Rep., 789; *Id.*, 1008); in the United States Circuit Court for the Southern District of New York against Leeds, in which the novelty of the said engraved sound-record or wax-like sound-record and of the engraving apparatus and engraving step was sustained (87 Fed. Rep., 873); in the same court against Walcutt, in which the validity of the said claims for the engraving method and the engraved sound-record or wax-like sound-record was sustained (87 Fed. Rep., 556; 86 Fed. Rep., 468); and a number of other

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unreported decisions, sustaining the novelty and the validity of the said claims for the said engraved sound-record or wax-like sound-record, the said engraving apparatus, device and tools, and the said engraving method or step. 19

## 10.

And your orator further shows that sound-records in a hard material containing sound-grooves of uniform depth with lateral undulations corresponding to sound-waves, commonly known as zigzag disc records, are now extensively produced under and in accordance with the above specified claims of this patent in suit in the following manner, to wit: First, the original record is cut or engraved in a tablet of wax-like material, a suitable recording-tool cutting or engraving into the said tablet and removing the material in chips or shavings to produce a groove of uniform depth characterized by lateral undulations corresponding to the sound-waves; second, the surface of this engraved sound-record or wax-like sound-record is then rendered electrically conductive, as by the application of finely powdered graphite or the like; third, a matrix is deposited upon this electro-conductive surface by electrolysis, in the usual manner; and, fourth, the matrix having been separated from the original, is backed up and used as a stamp or die for impressing into a disc or tablet of suitable material, to produce the ultimate or commercial zigzag disc sound-record as aforesaid. 20 21

## 11.

And your orator further shows that in producing the sound-records in the manner just disclosed in the preceding paragraph, the first step therein set forth involves the use of the wax-like material (claimed in and by claims 7, 10, 11, 12, 14, 17, 18, and 45 of the patent in suit), it also involves the employment of the recording or engraving apparatus and devices (claimed in and by claims 3, 4, 5, 6, 11,



22 13, 30, 31, 32, 33, 34, and 35 of the said patent), and it further involves the use of the method or process (claimed in and by claims 1, 9, and 15 of the said patent); and the production in this manner of the ultimate or commercial zigzag disc sound-records in hard material constitutes an infringement of the claims just specified; and the said matrixes and the said sound-records themselves likewise constitute infringements of the said claims.

## 12.

And now your orator further shows, upon information and belief, that this defendant has recently been  
 23 organized, by persons well knowing the premises and your orator's rights, for the express purpose of undertaking and engaging in the production of the zigzag disc sound-records in the manner specified in paragraphs 10 and 11 hereof; that, without the license or consent of your orator but in violation of your orator's rights aforesaid, before the execution of this bill of complaint, and within the Southern District of New York and elsewhere within the United States, this defendant has made and used and sold, and has caused to be made and used and sold quantities of zigzag disc sound-records in hard material produced in the manner specified in paragraphs 10 and 11 hereof, in violation of the  
 24 above specified claims of the patent in suit; and that the defendant is still so doing and is threatening and preparing to continue its said unlawful acts, to your orator's great loss and damage; and that the said defendant has thereby realized and received and is now realizing and receiving large gains and profits, but to what extent your orator is ignorant, and therefore prays a discovery thereof.

Wherefore, your orator complains that the said defendant Universal Talking Machine Manufacturing Company, wrongfully and without license, within the Southern District of New York and elsewhere within the United States, has infringed



and patent), and  
 method or process  
 of the said  
 manner of the  
 sound-records in  
 engraving of the  
 matrixes and the  
 same constitute

claims 7, 10, 11, 12, 14, 17, 18 and 45, and also claims 25  
 3, 4, 5, 6, 11, 13, 30, 31, 32, 33, 34 and 35, and like-  
 wise claims 1, 9 and 15 of the patent in suit, and  
 each of said claims; that the said defendant is still  
 continuing and is threatening and preparing to ex-  
 tend his said infringements further; and that it has  
 realized and received great gains and profits from its  
 said infringement and caused great loss and damage  
 to your orator.

And forasmuch as your orator can have no relief  
 save in this Honorable Court, your orator prays as  
 follows:

that upon informa-  
 tion recently been  
 the premises and  
 press purpose of  
 production of the  
 inner specified in  
 it, without the li-  
 mit in violation of  
 the execution  
 within the Southern  
 there within the  
 made and used  
 made and used and  
 sound-records in hard  
 inner specified in  
 violation of the  
 in suit; and that  
 is threatening and  
 unlawful acts,  
 damage; and that  
 realized and received  
 large gains and  
 orator is ignorant,  
 hereof.  
 claims that the said  
 Machine Manufactur-  
 ing without license,  
 New York and else-  
 where, has infringed

1. That the said defendant Universal talking Ma-  
 chine Manufacturing Company, and its associates, 26  
 attorneys, assigns, servants, clerks, agents and  
 workmen, and each of them, may be perpetually  
 enjoined and restrained by a writ of injunction  
 from directly or indirectly making or causing to be  
 made, using or causing to be used, and selling or  
 causing to be sold, any of the engraving appa-  
 ratus and devices and tools aforesaid, and the en-  
 graving method or step aforesaid, and any of the  
 engraving sound-records or wax-like sound-records  
 aforesaid, and any of the matrixes whose production  
 involves any of the same;

2. That the defendant may be compelled, by order  
 of this Honorable Court, to deliver up to the judicial 27  
 custody for destruction, all engraving apparatus  
 and devices and tools for producing sound-records,  
 and all engraved or wax-like sound-records, and all  
 matrixes whose production involve the same or the  
 engraving method, in its possession or control;

3. That your Honors will grant unto your orator  
 a preliminary injunction to the same purport, tenor  
 and effect as hereinbefore prayed for with regard to  
 said perpetual injunction;

4. That your Honors will grant an accounting for  
 damages and profits by reason of the said defend-



28 ant's aforesaid infringement of the patent in suit,  
and may increase the damage aforesaid to a sum  
not exceeding three times the amount thereof;

5. That the defendant be decreed to pay the costs  
of this suit; and

6. That your orator may have such other and  
further relief as the equity of the case may re-  
quire.

29 To the end, therefore, that the said defendant  
may, if it can, show why your orator should not  
have the relief hereby prayed, and may full, true  
and direct answer make—but not under oath, an-  
swer under oath being expressly waived—according  
to the best and utmost of its knowledge, informa-  
tion, remembrance and belief, to the several mat-  
ters hereinbefore averred and set forth, as fully and  
particularly as if the same were repeated, paragraph  
by paragraph, and said defendant thereto severally  
and specifically interrogated, may it please your  
Honors to grant to your orator the writ of subpoena  
*ad respondendum* issuing out of and under the seal  
of this Honorable Court, directed to said defendant  
Universal Talking Machine Manufacturing Com-  
pany, commanding it to appear and make answer  
to this bill of complaint, and to perform and abide  
by such orders and decrees herein as to this Court  
may seem just.

30 And your orator will ever pray.

AMERICAN GRAPHOPHONE COMPANY,

By E. D. EASTON,

[SEAL.]

President.

Attest:

E. O. ROCKWOOD,

Secretary.

ELISHA K. CAMP,

Solicitor for Complainant.

PHILIP MAURO,

C. A. L. MASSIE,

Of Counsel.

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STATE OF NEW YORK, }  
County of New York, } ss.:

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EDWARD D. EASTON, being duly sworn, deposes and says: that he is president of the American Graphophone Company, named as complainant in the foregoing bill; that he has read the same and knows the contents thereof, and that the same is true of his own knowledge, save as to the matters therein stated to be alleged upon information and belief; and that as to those matters he believes it to be true; and that the seal affixed to said bill is the corporate seal of said complainant, and was by him affixed to the bill by authority of said corporation.

EDWARD D. EASTON.

Subscribed and sworn to before me, }  
this 17th day of March, 1902. }

32

ELISHA K. CAMP,

[SEAL.]

Notary Public,

N. Y. Co.

(Endorsed)—U. S. Circuit Court, S. D. of N. Y.—  
American Graphophone Co. *vs.* Universal Talk-  
ing Machine Manufacturing Co.—Bill of Com-  
plaint.—Elisha K. Camp, Solicitor for Complain-  
ant, 277 Broadway, New York City.—U. S. Cir-  
cuit Court, Southern District of New York.—  
Filed Mar. 19, 1902.—John A. Shields, Clerk.

33

OMPANY,  
EASTON,  
President.

Complainant.



34 IN THE CIRCUIT COURT OF THE UNITED  
STATES,

SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,

Plaintiff,

vs.

35 UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

In Equity.

The answer of the Universal Talking Machine Manufacturing Company, the above named defendant, to the bill of complaint of the American Graphophone Company, the above named complainant.

36 This defendant now and at all times hereafter saving and reserving to itself any and all manner of benefit or advantage of exceptions, or otherwise, that can or may be had to the many errors, uncertainties and imperfections in the said bill of complaint contained, for answer to said bill, or so much thereof as the defendant is advised is material or necessary for it to make answer unto, answering says:

1. Whether the said plaintiff, the American Graphophone Company, is a corporation duly organized and existing under the laws of the State of West Virginia this defendant does not know, save by information contained in said bill of complaint, and calls upon said plaintiff for proof thereof. It admits that it is a corporation created and existing under and by virtue of the laws of the State of New York.



2. This defendant denies that Chichester A. Bell and Sumner Tainter were the original, first or joint inventors of the alleged improvements in recording and reproducing speech and other sounds referred to in paragraph 1 of the bill of complaint, and denies that the same were not known or used by others in this country before the date of their alleged invention by the said Bell and Tainter, and denies that they were not patented or described in any printed publications in this or any foreign country before the invention of the said Bell and Tainter, and denies that they were not in public use or on sale in the United States for more than two years prior to the date of the application of the said Bell and Tainter for a patent therefor, and denies that the same had not been abandoned to the public.

3. This defendant believes and admits that certain Letters Patent of the United States, No. 341,214, dated May 4, 1886, were issued to the said Chichester A. Bell and Sumner Tainter for certain alleged improvements in recording and reproducing speech and other sound, but denies that the said Bell and Tainter in making application therefor complied in all respects with the provisions and requirements of the laws of the United States in such case made and provided; and denies that any valid, exclusive rights were acquired by virtue of the issue of the said Letters Patent.

4. This defendant does not know and has no information, save by said bill of complaint, whether said Letters Patent No. 341,214 were assigned by the said Bell and Tainter to the Volta Graphophone Company, as alleged in paragraph 3 of the bill of complaint, and calls upon the plaintiff for proof thereof.

5. This defendant does not know and has no information, save by said bill of complaint, whether said Letters Patent No. 341,214 was duly assigned



40 unto the plaintiff, the American Graphophone Company, by the said Volta Graphophone Company, and calls upon the plaintiff for proof thereof.

6. This defendant denies that it has ever made, sold or used, directly or indirectly, without the license of the plaintiff, any constructions or devices which infringe any of the claims of the said Letters Patent hereinbefore referred to; and denies that the plaintiff is now, or ever was, the sole and exclusive owner of any rights acquired under or by virtue of the said Letters Patent, or otherwise, which this defendant has infringed.

41 7. This defendant denies that the plaintiff has expended large sums of money in practicing and introducing to the public any invention or improvement which this defendant has made, sold or used, directly or indirectly, and denies that there has been any public acquiescence that Bell and Tainter were the first original inventors of the devices and construction which the complainant by the said bill of complaint claims broadly was the invention of the said Bell and Tainter, and denies that the said patent is a good and valid patent; and this defendant denies that the public have acknowledged these claims of the plaintiff to the exclusive right to the said alleged invention under the said patent; and  
42 this defendant denies that it has done or performed any acts, directly or indirectly, which have infringed or interfered with any rights of the plaintiff in the premises.

8. This defendant denies that it has infringed the said Letters Patent in suit, No. 341,214, by making, using or vending engraved or scratched sound record such as set forth by claims 7, 10, 12, 14, 17, 18 or 45 thereof, or by making, using or vending any method or thing described or claimed in the said Letters Patent in suit, and denies that it has produced any sound record by means of de-



vices or things such as set forth in claims 43  
 3, 4, 5, 6, 11, 13, 30, 31, 32, 33, 34 or  
 35, or such as set forth in any of the claims  
 of the said Letters Patent, and denies that it has em-  
 ployed the methods set forth by claims 1, 9 or 15 of  
 the said patent, or any methods of the said patent;  
 and denies that it had done anything wrongfully or  
 unlawful in the premises, as alleged; and denies  
 that it had deprived the plaintiff of any profits to  
 which it was justly entitled, or intended or intends  
 so to do. This defendant denies that it is now in-  
 fringing, or threatening to infringe, any rights of  
 the plaintiff in the premises, and denies that the  
 plaintiff, by reason of any unlawful acts of this  
 defendant, has suffered, or is suffering, or will 44  
 suffer, any great or irreparable loss or injury, and  
 denies that the plaintiff is or will be deprived of any  
 gains or profits, by reason of any unlawful acts of  
 this defendant; this defendant denies that it has de-  
 rived or received, or is still deriving, or receiving,  
 any gains or profits whatsoever by reason of any  
 unlawful acts in the premises as alleged.

9. This defendant denies that it has by any acts  
 whatsoever encouraged or induced, or is encourag-  
 ing or inducing, others to infringe the said Letter  
 Patent in suit.

10. This defendant denies that it was duly notified 45  
 by plaintiff of the alleged infringement complained  
 of in said bill of complaint; and denies that it re-  
 fused to desist from any infringement of any rights  
 of the plaintiff in the premises.

This defendant avers that the plaintiff has  
 wholly failed to comply with the requirements of  
 Section 4900 of the Revised Statutes of the United  
 States, in that it has wholly failed to give public  
 notice of the fact of the issue of the said respective  
 Letters Patent, or of the number or date of the  
 same of any claim it had, or pretended to have had,  
 or to have, to the exclusive use of the said alleged



- 46 invention, by virtue of the said respective Letters Patent in suit, or otherwise, by marking, stamping, or otherwise affixing notice to said alleged patented improvements, in suit as made, sold or used by the plaintiff; but that it has failed to make the said alleged patented improvements as required by said section of the revised statutes.

This defendant, further answering, and not waiving any, but insisting upon all and singular the matters herein set forth, further says, by way of defense to the said bill of complaint, upon information and belief, that the said Letters Patent in suit are null and void, for the reasons as follows, to wit:

- 47 11. That the said Chichester A. Bell and Sumner Tainter, the alleged joint inventors of the alleged improvements in recording and reproducing speech and other sounds, described and claimed in said Letters Patent, No. 341,214, were not the true, original, or first inventors or discoverers, or joint inventors or discoverers, of the said alleged improvements described in said Letters Patent, nor of any material or substantial part thereof, but that the thing patented in the said Letters Patent, No. 341,214, was prior to the alleged invention or discovery of the said Bell and Tainter, known to and used by the hereinafter mentioned persons at the hereinafter mentioned places, respectively, to wit:

- 48 Thomas A. Edison, of Llewellyn Park, New Jersey, at Menlo Park, New Jersey, and elsewhere.  
 Emile Berliner, of Washington, D. C., at Washington, D. C., and elsewhere.  
 John F. Ott, of Orange, New Jersey, at Menlo Park, Orange, New Jersey, and elsewhere.  
 Edward H. Johnson, of Greenwich, Connecticut, at Menlo Park, New Jersey; New York, New York, and elsewhere.  
 Charles Batchelor, of New York, New York, at Menlo Park, New Jersey; New York, New York, and elsewhere.

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John Kruesi, Schenectady, New York, at Menlo 49  
Park, New Jersey; New York New York, and else-  
where.

James U. McKenzie, of Brooklyn, New York, at  
Menlo Park, New Jersey, New York, New York,  
and elsewhere.

George H. Harrington, of Wichita, Kansas, at  
Wichita, Kansas and elsewhere.

Frank Lambert, of Brooklyn, New York, at An-  
sonia, Connecticut, Jamaica, Brooklyn and New  
York, New York, and elsewhere.

Eugene Pastre, of Brooklyn, New York, at An-  
sonia, Connecticut; at Jamaica, Brooklyn, and New  
York, New York, and elsewhere.

Walter D. Davis, of Brooklyn, New York, at 50  
Ansonia, Connecticut, Jamaica, Brooklyn and New  
York, New York, and elsewhere.

Isaac W. Heysinger, of Philadelphia, Pennsyl-  
vania, at Philadelphia, Pennsylvania, and elsewhere.

Ansonia Clock Company, of Ansonia, Connecticut,  
at Ansonia, Connecticut, and elsewhere.

Clarence J. Blake, of Boston, Massachusetts, at  
Boston, Massachusetts, Washington, D. C., and  
elsewhere.

Clarence E. Gifford, of Jamestown, New York, at  
Jamestown, New York, Chicago, Illinois, Lewiston,  
Pennsylvania, and elsewhere.

Sigmund Bergmann, of New York, New York, at  
New York, New York, Menlo Park, New Jersey, 51  
and elsewhere.

Theodore W. Searing, of South Norwalk, Con-  
necticut, at New York, New York, and elsewhere.

C. H. Field, of Providence, Rhode Island, at Prov-  
idence, Rhode Island and elsewhere.

O. H. Bogardus, of Syracuse, New York, at  
Syracuse, New York, and elsewhere.

Theodore Cooper, Crompton Mills, Warwick,  
Rhode Island, at Crompton Mills, Warwick, and  
Providence, Rhode Island, and elsewhere.

R. Kennedy, of Mt. Carmel, Connecticut, at Mt.  
Carmel, Connecticut, and elsewhere.



- 52 Ralph S. Mershon, of Zanesville, Ohio, at Zanesville, Ohio, and elsewhere.  
 Gioani Betini, of New York City, New York City, New York, and elsewhere.  
 L. Hillman, of Newton, New Jersey, at Newton, New Jersey, and elsewhere.  
 Frederick D. Miles, of Philadelphia, Pennsylvania, at Philadelphia, Pennsylvania, and elsewhere.  
 James M. Connor, of Brooklyn, New York, at Brooklyn, New York, and elsewhere.  
 George R. Babbit, of Providence, Rhode Island, at Providence, Rhode Island, and elsewhere.  
 John C. Guerrant, of Danville, Virginia, at Danville, Virginia, and elsewhere.
- 53 Robert B. Atchison, of Boston, Massachusetts, at Boston, Massachusetts, and elsewhere.  
 Loring Pickering, of San Francisco, California, at San Francisco, California, and elsewhere.  
 A. Wilford Hall, of New York, New York, at New York, New York, and elsewhere.  
 Thomas L. Lagers, of Philadelphia, Pennsylvania, at Philadelphia, Pennsylvania, and elsewhere.  
 Milton Bradley, of Springfield, Massachusetts, at Springfield, Massachusetts, and elsewhere.  
 Robert N. Lockwood, of New York, at New York, New York, and elsewhere.
- 54 William A. Leggo, of New York, New York, at New York, New York, and elsewhere.  
 A. S. Nichols, of New Haven, Connecticut, at New Haven, Connecticut, and elsewhere.  
 J. Harris Rogers, of Washington, D. C., at Washington, D. C., and elsewhere.  
 James Webb Rogers, of New York, New York, at New York, New York, and elsewhere.  
 Christopher C. Reynolds, of Prescott, Arizona, at Prescott, Arizona, and elsewhere.  
 John Absterdam, of New York, New York, at New York, and elsewhere.  
 Rufus Anderson, of New York, New York, at

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New York, New York, Danville, Pa., and elsewhere. 55

Seth E. Beedy, of Farmington, Maine, at Farmington, Maine, and elsewhere.

John J. Linscott, of Farmington, Maine, at Farmington, Maine, and elsewhere.

Collett Leventhorpe, of Rutherfordton, North Carolina, at Rutherfordton, North Carolina, and elsewhere.

Samuel H. Bartlett, of New York, New York, at New York, New York, and elsewhere.

Also to others, whose names and residences and places of prior knowledge and use are at present unknown to this defendant, but which it craves leave hereafter add as it may be advised.

56

11. That the thing patented in the said Letters Patent No. 341,214, were in public use and on sale in the United States for more than two years prior to the respective dates of the respective applications for said Letters Patent in suit, and that such use and sale was had by the foregoing named persons at the foregoing named places, respectively.

12. That the thing patented in the said Letters Patent No. 341,214, had prior to the alleged invention or discovery thereof of said Bell and Tainter been patented and described in the hereinafter mentioned Letters Patent of the United States and foreign countries.

57

| Number. | Date.             | Patentee.           |
|---------|-------------------|---------------------|
| 17,146  | April 28, 1857    | Charles H. Field.   |
| 32,959  | July 30, 1861     | C. H. Bogardus.     |
| 52,292  | January 30, 1866  | T. Kennedy.         |
| 56,141  | July 3, 1866      | Theodore Cooper.    |
| 72,521  | December 24, 1867 | Ralph S. Mershon.   |
| 93,619  | August 10, 1869   | L. Hillman.         |
| 115,934 | June 13, 1871     | James M. Connor.    |
| 111,859 | February 14, 1871 | Frederick B. Miles. |
| 153,212 | July 21, 1874     | George R. Babbitt.  |
| 174,715 | March 14, 1876    | Robert B. Atchison. |



| 58 | Number. | Date.              | Patentee.                           |
|----|---------|--------------------|-------------------------------------|
|    | 183,920 | October 31, 1886   | John C. Guerrant.                   |
|    | 191,464 | May 29, 1877       | Loring Pickering.                   |
|    | 200,521 | February 10, 1878  | Thomas A. Edison.                   |
|    | 201,760 | March 26, 1878     | Thomas A. Edison.                   |
|    | 213,554 | March 25, 1879     | Thomas A. Edison.                   |
|    | 219,939 | September 23, 1879 | A. Wilford Hall.                    |
|    | 222,292 | December 2, 1879   | Thomas L. Luders.                   |
|    | 225,457 | March 16, 1880     | Milton Bradley.                     |
|    | 227,679 | May 18, 1880       | Thomas A. Edison.                   |
|    | 231,065 | August 10, 1880    | Robert M. Lockwood<br><i>et al.</i> |
|    | 232,978 | October 5, 1880    | John W. Kenyon.                     |
|    | 238,929 | March 15, 1881     | William A. Leggo.                   |
| 59 | 266,746 | October 31, 1882   | Seth E. Beedy.                      |
|    | 271,903 | February 6, 1883   | A. S. Nichols.                      |
|    | 277,349 | May 8, 1883        | J. Harris Rogers.                   |
|    | 279,292 | June 12, 1883      | James H. M. Wal-<br>dorp.           |
|    | 283,665 | August 21, 1883    | James W. Rogers.                    |
|    | 287,166 | October 23, 1883   | Christopher C. Rey-<br>nolds.       |
|    | 295,219 | March 18, 1884     | John Amsterdam.                     |
|    | 296,376 | April 8, 1884      | Rufus Anderson.                     |
|    | 293,030 | May 6, 1884        | Albert Schmid.                      |
|    | 305,178 | September 16, 1884 | George M. Guerrant<br><i>et al.</i> |
|    | 341,212 | May 4, 1886        | A. G. and C. A. Bell.               |
|    | 341,287 | May 4, 1886        | Sumner Tainter.                     |
| 60 | 372,786 | November 8, 1887   | Emile Berliner.                     |
|    | 12,192  | January 9, 1855    | W. J. Casselman.                    |
|    | 624,625 | May 9, 1899        | Clark and Johnson                   |
|    | 645,920 | March 20, 1900     | T. B. Lambert                       |

## LETTERS PATENT OF GREAT BRITAIN, as follows:

| NAME.                 | NUMBER. | DATE. |
|-----------------------|---------|-------|
| William Mann          | 1912    | 1857  |
| Aime L. E. Brittmayer | 324     | 1860  |
| Henry B. Greenwood    | 325     | 1870  |
| Thomas A. Edison      | 2909    | 1877  |
| Thomas A. Edison      | 1644    | 1878  |
| Herbert J. Haddon     | 291     | 1882  |



## LETTERS PATENT OF FRANCE, as follows:

61

| NAME.                            | NUMBER. | DATE.              |
|----------------------------------|---------|--------------------|
| Thomas A. Edison...              | 121,697 | February 19, 1878  |
| Patent of addition thereto ..... |         | February 19, 1878  |
| Thomas A. Edison...              | 129,974 | September 16, 1878 |
| Charles Cros .....               | 124,213 | July 27, 1878      |
| Patent of addition thereto ..... |         | October 3, 1878    |
| Antonio Vicini .....             | 128,215 | March 17, 1879     |
| Charles Weyher.....              | 135,688 | May 20, 1880       |
| Patent of addition thereto ..... |         | March 23, 1880     |
| Patent of addition thereto ..... |         | July 11, 1880      |
| Patent of addition thereto ..... |         | September 20, 1883 |
| Paul Goloubitzky ...             | 145,584 | December 7, 1881   |
| Patent of addition thereto ..... |         | March 15, 1882     |
| Patent of addition thereto ..... |         | September 26, 1882 |
| Patent of addition thereto ..... |         | September 20, 1883 |
| Morel .....                      | 146,670 | March 17, 1882     |
| Morel .....                      | 146,673 | March 17, 1882     |
| Claude A. Terrier....            | 156,749 | November 8, 1883   |

## LETTERS PATENT OF GERMANY, as follows:

63

|                     |        |                  |
|---------------------|--------|------------------|
| Thomas A. Edison... | 12,631 | July 12, 1878    |
| Kleist & Company... | 11,053 | January 24, 1879 |
| Thomas A. Edison... | 14,308 | August 18, 1881  |
| Thomas A. Edison... | 12,631 | April 27, 1881   |

## LETTERS PATENT OF CANADA, as follows:

|                     |      |   |
|---------------------|------|---|
| Thomas A. Edison... | 8026 | { October 17, 1877<br>Issued October 20, 1877 |
| Thomas A. Edison... | 9282 | October 19, 1878                              |



64 Also the following Letters Patent granted to Thomas A. Edison in the countries named, to wit:

Belgium, No. 43,984, dated January 31, 1878, and No. 45,375, dated June 29, 1878.

Italy, No. 422, dated February 8, 1878, and No. , dated July 4, 1888.

Austria, dated January 1, 1879, and dated January 8, 1879.

Spain, dated May 6, 1878.

Russja, No. 1161, dated February 15-27, 1882.

Norway, dated October 8, 1878.

Sweden, dated March 29, 1879.

Denmark No. 1345, dated October 31, 1878.

India, deposited March 20, 1879.

65 New South Wales, dated September 16, 1878.

Victoria, dated August 13, 1878, and No. 2549, dated August 15, 1878.

That the thing patented in the said Letters Patent in suit, No. 341,214, and all material and substantial parts thereof, had prior to the date of the alleged invention and discovery of the said Bell and Tainter, been fully and accurately described and published in the following printed publications, to wit:

Chemical News and Journal of Physical Science, Vol. 37, page 99 *et seq.*, published at London, March 8, 1878, by William Crookes.

66 Chambers' Journal, Vol. 55, page 126 *et seq.*, published at London and Edinburg, February 23, 1878, by W. & R. Chambers.

Chambers' Journal, Vol. 55, page 206 *et seq.*, published at London and Edinburg, March 30, 1878, and by W. & R. Chambers.

Chambers' Journal, Vol. 55, page 256 *et seq.*, published at London and Edinburg, April 20, 1878, by W. & R. Chambers.

Engineering, Vol. 25, page 187 *et seq.*, published at London, March 8, edited by W. H. Maw and J. Dredge.

The Engineer, Vol. 25, page 84 *et seq.*, published



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hysical Science,  
London, March

126 *et seq.*, pub-  
bruary 23, 1878,

206 *et seq.*, pub-  
March 30, 1878,

256 *et seq.*, pub-  
April 20, 1878, by

*t seq.*, published  
H. Maw and J.

*et seq.*, published

at London, August 2, 1878, by George Leopold 67  
Riche.

The Engineer, Vol. 56, page 283 *et seq.*, published  
at London, October 19, 1883, by George Leopold  
Riche.

The Gentlemen's Magazine, Vol. 20, New Series,  
page 688 *et seq.*, published at London, June, 1878,  
by Chatto & Windus.

Harper's New Monthly Magazine, Vol. 57, page,  
312 *et seq.*, published at New York, July, 1878, by  
Harper & Brothers.

Harper's New Monthly Magazine, Vol. 57, page  
470 *et seq.*, published at New York, August, 1878,  
by Harper & Brothers.

Harper's New Monthly Magazine, Vol. 57, page 68  
632 *et seq.*, published at New York, September,  
1878, by Harper & Brothers.

Harper's Weekly, Vol. 22, page 249 *et seq.*, pub-  
lished at New York, March 30, 1878, by Harper &  
Brothers.

Iron, Vol. II., page 301 *et seq.*, published at Lon-  
don, March 9, 1878, by "Iron" offices.

Iron Age, page 27 *et seq.*, of issue of June 27,  
1878, published at New York, by David Williams.

Iron Age, page 24 *et seq.*, of issue of March 28,  
1878, published at New York, by David Williams.

Iron Age, page 5 *et seq.*, of issue of May 23, 1878,  
published at New York, by David Williams.

Iron Age, page 8 *et seq.*, of August 22, 1878, 69  
published at New York, by David Williams.

Journal of the Society of Telegraph Engineers  
and Electricians, Vol. 7, page 68 *et seq.*, published  
at London, February 27, 1878, by E. and F. W.  
Spon.

Journal of the Franklin Institute, Vol. 75, page  
266 *et seq.*, published at Philadelphia, April, 1878,  
by the Franklin Institute.

Journal of the Franklin Institute, Vol. 75, page  
348 *et seq.*, published at Philadelphia, May, 1878,  
by the Franklin Institute.

Journal of the Franklin Institute, Vol. 84, page



- 70 49 *et seq.*, published at Philadelphia, July, 1882, by the Franklin Institute.

Journal of the Society of Arts, Vol. 26, page 109 *et seq.*, published at London, January 11, 1878, by George Bell & Sons.

Journal of the Society of Arts, Vol. 26, page 241 *et seq.*, published at London, February 15th, 1878, by George Bell & Sons.

Journal of the Society of Arts, Vol. 26, page 543 *et seq.*, published at London, May 10th, 1878, by George Bell & Sons.

Knight's New Mechanical Dictionary, page 671 *et seq.*, published at Boston, in the year 1884, by Houghton, Mifflin & Company.

- 71 Manufacturer and Builder, Vol. 10, page 34 *et seq.*, published in New York, April, 1878, by H. N. Black.

Manufacturer and Builder, Vol. 11, page 95 *et seq.*, published at New York, April, 1879, by H. N. Black.

Mechanics, Vol. 5, page 319 *et seq.*, published at New York, April 26, 1884.

Nature, Vol. 17, page 90 *et seq.*, published at London and New York, November 29th, 1887, by Macmillan & Co.

Nature, Vol. 17, page 190 *et seq.*, published at London and New York, January 3d, 1878, by Macmillan & Co.

- 72 Nature, Vol. 17, page 291 *et seq.*, published at London and New York, February 7th, 1878, by Macmillan & Co.

Nature, Vol. 17, page 415 *et seq.*, published at London and New York, March 21st, 1878, by Macmillan & Co.

Nature, Vol. 17, page 384 *et seq.*, published at London and New York, March 17th, 1878, by Macmillan & Co.

Nature, Vol. 17, page 423 *et seq.*, published at London and New York, March 28th, 1878, by Macmillan & Co.

Nature, Vol. 17, page 471 *et seq.*, published at

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, page 34 *et*  
878, by H. N.

t, page 95 *et*  
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London and New York, April 11th, 1878, by Mac- 73  
millan & Co.

Nature, Vol. 18, pages 38 and 39 *et seq.*, published  
at London and New York, May 9, 1878, by Macmil-  
lan & Co.

Nature, Vol. 18, page 117 *et seq.*, published at  
London and New York, May 30, 1878, by Macmillan  
& Co.

Nature, Vol. 18, pages 93 and 101 *et seq.*, published  
at London and New York, May 23, 1878, by Macmil-  
lan & Co.

Nature, Vol. 18, page 168 *et seq.*, published at  
London and New York, June 13, 1878, by Macmil-  
lan & Co.

Nature, Vol. 18, page 240 *et seq.*, published at 74  
London and New York, June 27, 1878, by Macmillan  
& Co.

Nature, Vol. 18, page 249 *et seq.*, published at  
London and New York, July 4, 1878, by Macmillan  
& Co.

Nature, Vol. 18, page 320 *et seq.*, published at  
London and New York, July 18, 1878, by Macmillan  
& Co.

Nature, Vol. 18, page 340 *et seq.*, published at  
London and New York, July 25, 1878, by Macmil-  
lan & Co., and Vol. 18, p. 349, August 8, 1878.

Nature, Vol. 18, page 454 *et seq.*, published at  
London and New York, August 22, 1878, by Mac-  
millan & Co.

Nature, Vol. 19, page 122 *et seq.*, published at 75  
London and New York, December 12, 1878, by Mac-  
millan & Co.

Nature, Vol. 19, page 374 *et seq.*, published at  
London and New York, February 25, 1879, by Mac-  
millan & Co.

Nature, Vol. 23, page 373 *et seq.*, published at  
London and New York, February 17, 1878, by Mac-  
millan & Co.

Nature, Vol. 23, page 441 *et seq.*, published at  
London and New York, March 10, 1881, by Macmil-  
lan & Co.



- 76 Nature, Vol. 29, page 460 *et seq.*, published at London and New York, March 13, 1884, by Macmillan & Co.
- The New York Times, published at New York City, issue of March 24, 1878.
- The New York Times, published at New York City, issue of April 20, 1878.
- The New York Times, published at New York City, issue of April 21, 1878.
- The New York Times, published at New York City, issue of June 9, 1878.
- The New York Times, published at New York City, issue of February 1, 1880.
- The New York Tribune, published at New York City, issue of December 26, 1877.
- 77 The New York Tribune, published at New York City, issue of January 18, 1878.
- The New York Tribune, published at New York City, issue of March 21, 1878.
- The New York Tribune, published at New York City, issue of March 25, 1878.
- The New York Tribune, published at New York City, issue of April 6, 1878.
- The New York Tribune, published at New York City, issue of April 20, 1878.
- North American Review, Vol. 126, page 527 *et seq.*, published at New York, May-June, 1878, by B. Appleton & Co.
- 78 Popular Science Monthly, Vol. 12, pages 719 *et seq.*, and 748 *et seq.*, published at New York, April 1878, by D. Appleton & Co.
- Quarterly Journal of Science, Vol. 8, New Series, (Vol. 15, Old Series), page 245, *et seq.* published at London, 1878, at offices of the Quarterly Journal of Science.
- Scientific American, Vol. 37, page 376, published at New York, December 18, 1877, by Munn & Co.
- Scientific American, Vol. 37, page 384 *et seq.*, published at New York, December 12, 1877, by Munn & Co.
- Scientific American, Vol. 38, page 3 *et seq.*, pub-

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lished at New York, January 5, 1878, by Munn & Co. 79

Scientific American, Vol. 38, page 86 *et seq.*, published at New York, February 9, 1878, by Munn & Co.

Scientific American, Vol. 38, page 384 *et seq.* published at New York, June 22, 1878, by Munn & Co.

Scientific American, Vol. 38, page 405 *et seq.*, published at New York, June 29, 1878, by Munn & Co.

Scientific American, Vol. 40, page 356 *et seq.*, published at New York, June 7, 1878, by Munn & Co.

Scientific American, Vol. 39, page 5 *et seq.*, published at New York, July 6, 1878, by Munn & Co. 80

Scientific American, Vol. 39, page 17 *et seq.*, published at New York, July 13, 1878, by Munn & Co.

Scientific American Supplement, page 1828 *et seq.*, published at New York, March 16, 1878, by Munn & Co.

Scientific American Supplement, page 1893 *et seq.*, published at New York, April 13, 1878, by Munn & Co.

Scientific American Supplement, page 1904 *et seq.*, published at New York, April 20, 1878, by Munn & Co.

Scientific American Supplement, page 1973 *et seq.*, published at New York, May 18, 1878, by Munn & Co. 81

Scientific American Supplement, page 2137 *et seq.*, published at New York, August 24, 1878, by Munn & Co.

Scientific American Supplement, page 3454 *et seq.*, published at New York, February 28, 1880, by Munn & Co.

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- 82 The Telegraphic Journal and Electrical Review, Vol. 6, page 182 *et seq.*, published at London, May 1, 1878, by Houghton & Company.

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- The Telegraphic Journal and Electrical Review, Vol. 6, page 275 *et seq.*, published at London, July 1, 1878, by Houghton & Company.

83 The Telegraphic Journal and Electrical Review, Vol. 6, page 317 *et seq.*, published at London, August 1, 1878, by Houghton & Company.

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- 84 Western Review, Vol. 1, page 681 *et seq.*, published at Kansas City, Mo., Jan., 1878.

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- 88 Daily Evening Traveler, issue of May 23, 1878, published at Boston, Mass.  
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 Boston Herald, issue of June 1, 1878, published at Boston, Mass.  
 Baltimore Daily News, issue of April 29, 1878, published at Baltimore, Md.  
 Baltimore American, issue of May 21, 1878, published at Baltimore, Md.  
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 The Clipper, issue of February 28, 1880, published at New York.
- 89 Cincinnati Commercial, issue of March 11, April 1 and May 5, 1878, published at Cincinnati, Ohio.  
 Evening Journal, issue of May 9, 1878, published at Chicago, Ill.  
 Cape Ann Advertiser, issue of May 24, 1878, published at Cape Ann, Mass.  
 Dayton Democrat, issues of April 23 and May 11, 1878, published at Dayton, Ohio.  
 Daily News, issue of April 10, 1878, published at London.  
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- 90 London Morning Post, issue of April 20, 1878, published at London.  
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lished at New York.

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New York Graphic, issues of March 15th, April 2d,  
April 18th, June 8th and August 30th, published at  
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The Operator, issues of May 1 and June 1, 1878,  
published at New York.

The Public, issue of May 2, 1878, published at New  
York.

The Sunday Times, issue of April 7, 1878, pub-  
lished at Philadelphia, Pa.

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12, 1878, published at Pottsville, Pa.



- 94 Philadelphia Inquirer, issue of April 20, 1878, published at Philadelphia, Pa.  
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 Philadelphia Weekly Times, issue of April 27, 1878, published at Philadelphia, Pa.  
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 Philadelphia Ledger, issue of March 21, 1878, published at Philadelphia, Pa.
- 95 Portsmouth Daily Chronicle, issue of March 12, 1878, published at Portsmouth, N. H.  
 The State, issue of April 30, 1878, published at Richmond, Va.  
 Rochester Democrat, issue of March 13, 1878, published at Rochester, N. Y.  
 San Francisco Chronicle, issue of March 15, 1878, published at San Francisco, Cal.  
 St. Joseph Daily Herald, issue of May 23, 1878, published at St. Joseph, Mo.  
 Washington Star, issues of April 19 and May 7, 1878, published at Washington, D. C., by the Evening Star Publishing Co.  
 Workshop Receipts (Third Series), page 172, published at London, in the year 1884, by E. & F. W. Spon.
- 96 Engineering, Vol. 27, page 326 *et seq.*, published at London, April 18, 1878, edited by W. H. Maw and J. Dredge.  
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 104 *et seq.*, pub-

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The Telegraphic Journal, Vol. 7, page 53 *et seq.*, published at London, February 1, 1879, by Houghton & Company.

Telegraphic Journal, Vol. 7, page 151 *et seq.*, published at London, May 1, 1879, by Houghton & Company.

La Nature, issue of May 3, 1879, page 349 *et seq.*

Journal of the Society of Telegraph Engineers and Electricians, Vol. 3, page 303 *et seq.*, published at London, April 9, 1879. 98

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Scribner's Monthly, No. 15, pages 857 *et seq.*, and 899 *et seq.*, published at New York, April, 1878, by Scribner & Co.

Popular Science Review, Vol. 2, New Series, page 219 *et seq.*, published at London, 1878.

The Speaking Telephone, Talking Phonograph and other Novelties, by George B. Prescott, Chapter 10, pages 292 to 308 *et seq.*, published at New York, 1878. 99

Ganot's Elementary Treatise on Physics, pages 241, 242 and 243, published at New York, in the year 1883, by William Woof & Company.

Elementary Treatise on Natural Philosophy, by A. Privat Deschanel, part 3, pages 824 and 815, published at London, in the year 1872, by Blackie & Son.

Vershule der Experimentalphysik, pages 263 to 266 *et seq.*, published at Leipzig, in the year 1883, by Duandt & Handel.



100 L'Architecte, issue of April 27, 1878, published in Paris, France, in 1878.

Le Monde Illustré, issue of April 6, 1878, published in Paris, France, in 1878.

The Universal Engineer, issue of January 17, 1879, Vol. 2, page 33 *et seq.*, published in Manchester, England; edited by R. Z. Craven.

The World's Weekly Review of Sciences, Vol. 47, pages 580 *et seq.*, published by Abbe Moigno, September-December, 1878.

Les Monde, issue of December 12, 1878, published in Paris, France.

Scientific American, issue of June 7, 1879, published in the City of New York, New York (see inter Div., page 356).

101 Lehrbuch Der Physik und Meteorologie, by Dr. John Muller, 6th edition in 2 vols. (see p. 229 of Vol. 2) published at Braunschweig, Germany, in the year 1863.

Le Moniteur Scientifique Journal Des Sciences Pures et Appliquees, 3 Series, Vol. VIII., pp 460, 462, published at Paris, in 1878.

And also in other printed publications at present unknown to this defendant, but which he craves leave to add hereafter as he may be advised.

102 14. That for the purpose of deceiving the public the description and specification, filed by said applicants in the Patent Office of the United States during the pendency of the said application for the patent in suit, were made to contain less than the whole truth relative to the alleged invention and discovery.

15. That in view of the state of the art at and before the date of the alleged invention of the said patentees, and of which due proof will be made by this defendant, the said Letters Patent in suit do not describe anything which is lawfully the subject matter for a patent under the laws of the United States, or which involves patentable novelty.



16. This defendant, further answering, says, that 103  
by reason of the amendments, disclaimers and argu-  
ments, filed during the pendency of the application  
for the said Letters Patent in suit, the said patent is  
narrowly limited, if it should be held to be valid at  
all, to the specific and detailed constructions of  
things described and claimed, and that said Letters  
Patent was issued with its claims as allowed, nar-  
rowly limited to the specific constructions of appa-  
ratus and parts claimed.

17. That the said Letters Patent in suit, and claims  
thereof, claim more than was, or is, the invention  
of the said patentees.

That the said Bell and Tainter are not and never 104  
were the joint inventors of the alleged invention  
described and claimed in Letters Patent No. 341,214.

18. And this defendant is advised and believes,  
and thereupon submits to this Honorable Court,  
that by reason of the foregoing facts, severally speci-  
fied, the said Letters Patent in suit, No. 341,214,  
was and is null and void; and this defendant denies  
that he had ever infringed, or intended to infringe,  
or does now infringe, or threatens or intends to in-  
fringe, upon any of the rights of the plaintiff, and  
denies that it has realized or acquired any profits or  
gains whatsoever by reason of any infringements of  
any rights of the plaintiff, and denies that the plain- 105  
tiff will be subject, as alleged, to great, irreparable  
damage or loss, or to any damage or loss whatso-  
ever, if it does not obtain the relief sought and  
prayed for in its said bill of complaint.

All of which things this defendant is ready and  
willing to aver, maintain and prove as this Honor-  
able Court shall direct.

This defendant prays the benefit of all the mat-  
ters and things hereinbefore set forth and alleged,  
as if the same were specially pleaded where a plea  
would have been proper, or as, if on account  
thereof, he had demurred to the said bill of com-



106   plaint, or to part or parts thereof, where a demurrer would have been proper; without this, that any other matter or thing in the plaintiff's bill of complaint contained, material or effectual to be answered, traversed, confessed and avoided, or denied, is true, all of which things this defendant will maintain and prove as this Honorable Court shall direct.

And humbly prays to be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

UNIVERSAL TALKING MACHINE MANUFACTURING CO.

H. ALBERTUS WEST,  
Solicitor for Defendant,

107

68 William St.,  
New York City,  
N. Y.

(Endorsed)—U. S. Circuit Court, Southern Dist. of N. Y.—American Graphophone Company *vs.* Universal Talking Machine Manufacturing Company.—Answer.—H. A. West, Solicitor for Defendant, No. 68 William St., New York.—U. S. Circuit Court, Southern District of New York.—Filed Jun. 19, 1902.—John A. Shields, Clerk.

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IN THE CIRCUIT COURT OF THE UNITED STATES 109

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE Co.

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
(On Patent No.  
341,214) Sound-  
Records.

Notice of Motion for Preliminary Injunction. 110

To H. ALBERTUS WEST, Esq.,  
Solicitor of Record for above named  
Defendant,  
68 William Street,  
New York City.

Please take notice that upon the bill of complaint herein and the annexed copy of patent in suit (copies of which have already been furnished you), and upon the annexed affidavits of J. W. Jones, S. T. Cameron and E. D. Easton, and the exhibits therein referred to, I shall move this Honorable Court, at the Court Room thereof, in the Post Office Building, in the Borough of Manhattan and City of New York, at the opening of the Court on June 6, 1902, or so soon thereafter as counsel can be heard, for a preliminary injunction pursuant to the prayers of the bill of complaint, and for such other and further relief as the equity of the cause may require. 111

The exhibits referred to in the motion papers are now at my office, No. 277 Broadway, and may be inspected by you at any reasonable time.

Yours very respectfully,

(Signed) ELISHA K. CAMP,  
Solicitor for Complainant.

Dated New York City, May 29, 1902.



112 Due and timely service of foregoing notice of motion, and receipt of copy of bill, patent in suit and affidavits of J. W. Jones, S. T. Cameron and E. D. Easton acknowledged this day of May, 1902.

Solicitor for Defendant.

IN THE CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

113

AMERICAN GRAPHOPHONE CO.

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity,  
On Patent No.  
341,214 (Sound-  
Records).

Motion for Preliminary Injunction.

114 And now comes the above named complainant, American Graphophone Company, by its solicitor of record, Elisha K. Camp, Esq., and upon the bill of complaint herein and the annexed copy of the patent in suit, and upon the affidavits of J. W. Jones, S. T. Cameron and E. D. Easton, all hereto annexed and the exhibits therein referred to, it moves this Honorable Court for a preliminary injunction pursuant to the prayers of the bill, and for such other and further relief as the equity of the case may require.

(Signed) ELISHA K. CAMP,  
Solicitor for Complainant.

Dated New York City, May 29, 1902.



IN THE CIRCUIT COURT OF THE UNITED STATES 115

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE CO.

vs.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Patent No.  
341,214.  
(Sound Records.)

Affidavit of J. W. Jones.

116

STATE OF NEW YORK, - }  
County of New York, } ss.:

JOSEPH W. JONES, being first duly sworn, deposes and says: I am of lawful age, and by profession a mechanical engineer. I reside in the City of New York.

I have been engaged in the production of talking machine records since about 1895. I was associated with Mr. Emile Berliner in Washington, D. C., and afterwards for about a year with the Berliner Graphophone Co. in Philadelphia. I was in the recording laboratory as assistant to Mr. Berliner, and also in the matrix laboratory, of which I had charge for a time. The records which were being made at that time were produced by the use of the so-called *etching* process, and were commonly known as Berliner records or gramophone records or etched records. Since leaving Mr. Berliner and the Berliner Company I have been working, experimentally and otherwise, in a laboratory of my own, and I have produced a new invention in making sound records, for which I have obtained a patent of the United States, No. 688,739, granted December 10, 1901, for the production of sound records.

117



118 During all my experience and to the best of my knowledge only two practical methods have so far been evolved for producing zigzag disc sound records in a commercial manner. From the distinctive steps employed in these two methods, they may be designated respectively as the *etching* process and the *engraving* process; and each of them leaves in or upon the article produced by it certain characteristic peculiarities that show clearly and conclusively which of the two processes was employed in making that article.

119 ETCHING PROCESS.—In producing records by the use of the etching process, the following steps are employed: First, a highly polished and perfectly smooth surface of zinc or the like is coated with a thin film of fatty substance which constitutes the “resist” to the action of the etching bath. The record of the sound is then traced in this film by the vibrations of a tracing-point attached to the diaphragm of a sound-box. The next step, after the tracing has been thus secured, is to etch the same into the plate—by the usual etching-bath. The spiral record groove thus etched into the surface of the plate is finished by a sharp graver’s tool in the hand of the operator. Afterwards, from this etched plate a matrix is obtained by electrolysis in the usual manner—the matrix being a faithful and accurate counterpart of the original etched record, but containing the record in relief as a ridge instead of a groove. Finally, this matrix is employed to impress the record into a disk or tablet of suitable hard material.

120

When this process, which is described in various patents of Mr. Berliner’s and is usually accredited to him, is carried out, certain peculiar characteristics may be detected in the ultimate sound-record. First: The etching plate for carrying the film and receiving the original tracing is most generally of zinc, and has been highly polished and buffed so as to present a perfectly smooth level surface with high

luster and peculiarities and for commercial purposes perfectly free from place, to clearly been made plate, the or pitted done up the use of tered or

By the mined w produced trate the “Jones Exhibit Gramoph

ENGRA are as for terial is turning table. The cording t operates tablet, re or shavin ciable and correspon surface o rendered powdered matrix is impressed plained.

This en acteristic



luster and free from concentric markings; this peculiarity appearing, also in the matrix, is accurately and faithfully reproduced in the ultimate commercial article, which will have a polished and perfectly level surface in its central position, entirely free from concentric markings. In the second place, the lettering made by the etching process clearly shows its origin. When the lettering has been made by a stamp upon the film on the zinc plate, the etching-fluid gives the letters a roughened or pitted appearance; if the lettering were to be done upon the ultimate record, this would require the use of heat which would be detected by a blistered or charred effect upon the material.

By these two peculiarities, then, it may be determined whether or not a given sound record was produced by the use of etching method. To illustrate this, I annex hereto as part of this affidavit "Jones Exhibit Zinc Plate for Etching," "Jones Exhibit Etched Plate" and "Jones Exhibit Old Gramophone Record."

ENGRAVING PROCESS.—The steps of this process are as follows: A disc or tablet of wax-like material is first turned perfectly smooth by an ordinary turning tool, the tablet being rotated upon a turntable. Then, by the lateral vibrations of the recording tool attached to a diaphragm, the said tool operates to cut or engrave into the surface of the tablet, removing the material therefrom in a thread or shaving, to produce a groove of slight but appreciable and uniform depth having lateral undulations corresponding to the original sound waves. The surface of the original record thus produced is then rendered electro-conductive, as by a coating of finely powdered graphite or the like. From this surface a matrix is now produced and the ultimate record then impressed, as in the older Berliner process just explained.

This engraving process likewise imparts its characteristic peculiarities to the ultimate record, so that



124 an examination of the latter will disclose the method employed in producing it. The turning down of the waxlike surface preparatory to engraving the record therein produces a series of concentric markings, always more or less visible to the naked eye. In this respect the sound records produced by this method (since this peculiarity is transmitted to the matrix and then to the record itself) differ entirely from those produced by the etching process; records by the etched process have a perfectly smooth, flat central surface; records produced by the engraving process show the concentric markings.

125 In the second place, in making the original waxlike record of this type by the engraving step just described, the lettering is produced by impressing a heated stamp into the surface of the waxlike tablet. The effect of this is to produce a depression with a polished bottom and a slight marginal raise or ridge. This peculiarity is retained in the matrix, of course in reverse, and is faithfully and accurately represented in the ultimate record. And in this respect also records made by the two methods may be distinguished: Records whose production involves the waxlike material and the engraving step will bear lettering characterized by a smooth and polished bottom or floor with a slight marginal raise or ridge around the contour of each letter.

126 In illustration of this engraving method, I annex hereto as part of my affidavit "Jones Exhibit, Wax-like Blank," "Jones Exhibit Engraved Wax-like Original," "Jones Exhibit Matrix from Engraved Original," and "Jones Exhibit Sound-record from Engraved Original."

On or about April 11, 1902, I called at the place of business of the Universal Talking Machine Manufacturing Company (named as defendant herein), at No. 23 East Twentieth street, in the Borough of Manhattan and City of New York. When I attempted to purchase records from this concern I was referred to Gooday & Fowler, No. 27 East Fourteenth street, in this city. Going to Messrs. Gooday



& Fowler's, at the place indicated, I purchased two 127  
 sound-records, which I annex hereto as "Jones Ex-  
 hibit Zonophone Record 1702," and "Jones Exhibit  
 Zonophone Record 1823." I likewise annex as  
 part of this affidavit two circulars bearing the name  
 of defendant as being the manufacturer. "Jones  
 Exhibit Defendant's Record Catalogue" has the  
 two exhibit records listed on pages 16 and 17 thereof.  
 "Jones Exhibit Defendant's Pamphlet" contains a  
 statement on page 2, concerning the zonophone  
 records, to which I call the attention of the Court.

Each of the two zonophone records made exhibits 128  
 contains the peculiar characteristics pointed out as  
 above, viz.: the central portion of each shows plainly  
 the concentric markings; the lettering and labeling  
 show plainly the smooth and polished bottom or  
 floor and the slight ridge around the margin. For  
 all these reasons I am satisfied that the production  
 of these two zonophone sound-record exhibits in-  
 volved the use of a tablet of wax-like material—  
 that is, a material capable of being cut by a turning-  
 tool or paring-tool, so that the material should be  
 removed in a strip or shaving; and likewise the  
 employment of the engraving step as above ex-  
 plained for cutting the record-groove into the sur-  
 face of the original wax-like tablet.

(Signed) JOSEPH W. JONES.

Subscribed and sworn to }  
 before me this 29th }  
 day of April, 1902. }

129

(Signed) ELISHA K. CAMP,  
 [SEAL.] Notary Public,  
 N. Y. Co.



130 IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity on Pat-  
ent No. 341,214  
(Sound Record).

131

**Affidavit of S. T. Cameron.**

District of Columbia, ss.:

132

S. T. CAMERON, being duly sworn, says: That he is forty-four years of age, resides at Washington, D. C., and is by profession a solicitor of patents and expert in causes relating to patents. That he was for many years an Examiner in the United States Patent Office where it was a part of his daily duty to examine and report upon structures upon which patents were sought, and that since severing his connection with the Patent Office, he has presented numerous applications for patent and has repeatedly testified as an expert in the United States courts in causes relating to patented structures. That he has made a special study of the art of recording and reproducing sound and is familiar with the devices for this purpose generally known as "talking machines," and which include graphophones, gramophones, phonographs and all similar instruments. That he has read and thoroughly understands United States patent in suit No. 341,214, granted May 4, 1886, to Bell & Tainter, and that he has repeatedly testified as an expert in suits brought for the infringement of this patent, and among other suits he so testified in the cases of the American Grapho-



phone Co. *v.* The National Gramophone Co. and 133  
 Frank Seaman, in the United States Circuit Court  
 for the Southern District of New York, and The  
 American Graphophone Co. *v.* The Berliner Gramo-  
 phone Co., Thomas S. Parvin and E. R. Johnson,  
 in the United States Circuit Court for the Eastern  
 District of Pennsylvania, in both of which suits  
 infringement of said Patent No. 341,214 was al-  
 leged.

Affiant further states that he has read the affi-  
 davit of Joseph W. Jones, given on behalf of com-  
 plainant herein and has examined and is familiar  
 with the exhibits mentioned in said affidavit.

Complainant's Patent No. 341,214, in suit, lies at  
 the foundation of the practical art of recording and 134  
 reproducing sounds. Briefly stated, the invention  
 described and claimed therein consists of a novel  
 sound record and method of forming a sound  
 record and a novel construction of reproducing in-  
 strument whereby the recorded sounds are repro-  
 duced from the record. I understand the subject-  
 matter of the present suit relates to the sound  
 record, and I shall therefore confine myself to this  
 branch of the invention. Briefly stated the record  
 described and claimed in the patent in suit consists  
 of a tablet of wax or wax-like material having a  
 line of irregular form cut or engraved therein, the  
 irregularities of the engraved line corresponding to  
 sound waves of the recorded sound. In the cutting 135  
 or engraving of this line the material of the tablet  
 is removed in the form of a minute thread or shav-  
 ing. The patent states, line 15, page 1, that

"The invention consists, first, in the forma-  
 tion of the record or 'phonogram,' as it has  
 been called, by means of a cutting style,  
 which is vibrated by the sound waves or sono-  
 rous vibrations to be recorded."

It further states, line 59, page 1, that

"The invention consists, secondly, in en-  
 graving or cutting the record in the waxy or



- 136 amorphous and slightly cohesive substance, preferably a compound of beeswax and paraffin (the latter in excess) is employed. This compound has no tendency to clog the style, but is readily removed hereby in chips or shavings."

- In the practical exemplification of the method of the patent, a tablet of wax-like material is provided with a smooth surface and the point of a cutting style or engraving tool is embedded in the surface of the tablet, while a vibratory diaphragm is also attached to the cutting style or engraving tool, and placed in position to be impinged upon by the sound waves to be recorded. The tablet is then revolved  
137 under the point of the style, and simultaneously given translatory motion in a right line past the style, so that the engraved record line is formed as a spiral groove upon the surface of the tablet. The vibrations of the sound waves are imparted to the diaphragm and through it to the cutting style, which latter is therefore caused to cut or engrave a wave-like line or groove in the surface of the tablet, the waves or irregularities of the line corresponding to the recorded sound waves.

- The tablet referred to in the affidavit of Joseph W. Jones as a blank wax tablet, and which is marked for purposes of identification "Complainant's Exhibit Blank Tablet," is a very good illustration of  
138 the character of tablet contemplated by the patent, *i. e.*, it is composed of wax-like material and has had its surface dressed down or smoothed off by the use of a shaving tool, under which the tablet has been rapidly revolved. The tracks of the shaving tool employed in smoothing the surface of the blank tablet are readily visible to the naked eye. This tablet having been thus smoothed off, is employed as the medium upon which the record is formed. The tablet is also referred to in Mr. Jones' affidavit, and which is marked for the purposes of identification "Complainant's Exhibit Record Cut or Engraved in a Wax-Like Tablet," is



a record made in exact accordance with the patent 139  
 in suit, *i. e.*, it is a wax-like tablet having a sound  
 record cut or engraved therein, the record being  
 readily distinguished by the naked eye, and being on  
 the zone midway between the centre portion of the  
 tablet and the blank portion about  $1\frac{1}{2}$  inches wide  
 on the outer circumference. It will be observed  
 that this tablet having the record engraved thereon  
 has a blank central portion upon which the lines of  
 the smoothing or planing tool which was used to  
 smooth off the surface of the tablet are still plainly  
 visible. It is possible to prepare a tablet upon which  
 the track of the smoothing tool is much less promi-  
 nent than in the two exhibits, "Blank Tablet" and  
 "Engraved Record" tablet herewith submitted, but 140  
 it is, so far as my experience has gone, invariably  
 present to a greater or less degree. It is customary  
 in the commercial preparation of such tablets to  
 stamp upon this central portion of the tablet the  
 name or number of the record, and any other de-  
 sired labeling, which stamping is usually done with  
 a hot stamp, and results in a depressed lettering with  
 a smooth bottom and slightly raised edges.

The record thus formed may be utilized directly in  
 conjunction with a proper reproducing instrument  
 for the purpose of reproducing the original sounds,  
 or it may be utilized as an original from which du-  
 plicate sound records may be produced. In this  
 latter case the surface of the record as formed 141  
 in the wax-like material is coated with some  
 suitable electrical conductor, as plumbago, and  
 then electroplated in the well-known manner,  
 which electroplate is then removed from the  
 surface of the wax record. The electroplate has  
 the spiral record groove, the lettering and all  
 other marks of every description whatsoever re-  
 produced *in relief*, *i. e.*, the record, lettering, &c.,  
 are in the form of raised ridge or ridges. Such an  
 electroplate is shown in the exhibit referred to in  
 Mr. Jones' affidavit, and for the purpose of identi-  
 fication marked "Complainant's Exhibit Electro-



- 142 plate Matrix." It will be observed that the lettering on the centre of the tablet is raised, and a careful inspection with a glass will show a spiral, raised, sinuous ridge corresponding to the cut or engraved groove of the wax record. This electroplate matrix has been taken from a carefully prepared smooth wax tablet, notwithstanding which, if the matrix is tilted at a slight angle and examined in a good light, the circular track of the smoothing tool is plainly visible upon the central portion of the matrix, *i. e.*, that portion upon which the raised lettering occurs. The character of this lettering and the track of the smoothing tool which was used upon the original wax record is conclusive proof
- 143 that this matrix was made from an original record cut or engraved in a surface of wax or wax-like material upon which the lettering or labeling had been stamped with a hot stamp. With the matrix thus prepared a duplicate record is formed by utilizing the matrix as a stamp for stamping a record into a tablet of hard rubber or other suitable material, previously softened by heat or otherwise, to receive the impression, and this duplicate record in hard rubber will be a faithful representation of the spiral record groove, the lettering and all other markings, including the trace of the smoothing tool upon the face of the wax tablet.
- 144 "Complainant's Exhibit, Stamped Duplicate Record No. 205," is an example of a record thus produced. It will be observed in this exhibit that the record is in the form of a spiral groove on the outer portion of the tablet, and that the lettering upon the central portion has a smooth bottom for each letter, with a roughened or raised outline surrounding each letter where the wax has been pressed up by the stamp as it was impressed into the original wax tablet. Furthermore, by holding this record at an angle to the light, the circular track of the smoothing tool, used to plane off the surface of the original wax tablet, is visible.

There is but one other method known to the art

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of recording sounds whereby a record at all similar 145  
to this record, "Complainant's Exhibit Stamped  
Duplicate Record No. 205" can be produced. That  
method is the one which is referred to in the affi-  
davit of Mr. Jones under the name of the "etching  
process," briefly stated, that method consists in  
taking a metallic plate, usually of zinc, such as  
"Complainant's Exhibit Zinc Plate," covering it  
with a thin coating of some material capable of re-  
sisting the action of acids, such as beeswax or  
tallow, but before so covering the zinc plate it is  
highly polished until it has the reflecting character  
of a mirror, as will be understood by examining the  
exhibit referred to. After the zinc tablet has re- 146  
ceived its coating a record groove is traced in the  
coating by means of a vibratory style connected to  
a suitable diaphragm, the style acting to push the  
coating to one side and exposing the surface of the  
zinc in an irregular line, whose irregularities cor-  
respond to the sound waves. This having been  
done, a stamp having the desired lettering thereon  
is pressed into the "resist" until the surface of  
the tablet is exposed over the surface covered  
by the desired lettering. After this the zinc  
plate is subjected to the action of an  
acid bath which eats into the surface of  
the metallic tablet wherever it is exposed, which is  
only along the lines of the record or the lettering  
upon the central portion. After this has been car- 147  
ried to a sufficient extent, the acid and resist are re-  
moved, leaving the plate with the lettering and the  
record groove formed therein, but leaving the rest  
of the surface of the zinc tablet as smooth and  
polished as was the original. Such a tablet with the  
record formed thereon is shown in "Complainant's  
Exhibit Zinc Record." This record is then electro-  
plated to secure a matrix, and the matrix used as a  
die or stamp for forming the duplicate record in  
hard rubber, or other suitable material exactly as  
described in connection with the duplicate record  
formed from the wax tablet. When the duplicate



148 record, however, is formed from an original etched in a metallic surface, the duplicate will not have the concentric markings corresponding to the track left by the smoothing tool in the wax tablet, for the reason that no such smoothing tool was employed on the zinc plate, the plate having been highly polished before use. Moreover the lettering upon the duplicate tablet will have a rough or pitted appearance in the bottom of the letters, and the edges thereof will be smooth and free from the rough border which I mentioned in connection with the duplicates taken from a wax tablet. A duplicate record made from a zinc tablet and with the greater portion of the lettering thereon etched by acid in

149 the original zinc tablet is illustrated by "Complainant's Exhibit Berliner Gramophone Record." If this record be turned to the light, and the centre thereof carefully examined, the entire absence of any concentric markings upon the central portion of the tablet will be observed. If now this be carefully compared with the red tablet, being "Complainant's Exhibit Stamped Duplicate Record No. 205," the difference in this respect will be observed if the examination be made in a strong light and the record tilted at a right angle. Moreover, the difference in the lettering upon the two tablets will be noticed. If the bottoms of the letters in the word "Berliner" be

150 examined under a glass, it will be observed that they are rough or "pitted," and by rubbing the finger along the lettering the edges thereof will be found to be perfectly smooth; whereas, in the Complainant's Record No. 205 the outlines of the lettering are rough and uneven, while the bottoms of the letters are smooth. An examination of these letters by the use of a glass will show very clearly that they were formed by stamping or impressing a stamp into the surface of the wax and crowding the waxy material out to the edge of the letters.

These two characteristics enable an expert in the art to readily determine whether a given duplicate

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was produced from an original made by cutting or engraving in a wax-like tablet or by etching in a metallic tablet. 151

I have carefully examined "Complainant's Exhibits, Zon-O-Phone Records No. 1702" and "18,023," and I find that each of these records possesses the concentric markings upon the surface of the central portion of the tablet, which clearly demonstrate that they were formed from an original record cut or engraved in a wax-like material whose surface had been smoothed by a suitable planing tool in the manner indicated in the Complainant's Exhibits Blank Wax Tablet and Wax Record. Moreover, I find that the lettering upon the surface of these records had a smooth bottom and a rough outline, which is always produced by stamping a hot stamp upon a wax-like surface, and since I know that there are only two methods known to the art of recording and reproducing sound whereby records of this kind may be formed, *i. e.*, the method of cutting or engraving in wax as defined in complainant's patent in suit, and that all etching with acid as is used in the Berliner record, I say, since I know that there are the only two methods known to the art, I have no hesitation in stating that these two Zonophone Records No. 1702 and No. 1823 were formed from original record cut or engraved in the wax-like tablet after the manner illustrated by Complainant's Exhibit Wax-Like Record Tablet:" 152 153

The record cut or engraved in a wax-like material as described in the Patent No. 341,214, in suit, is defined in claims 7, 8, 10, 12, 17 and 18, while the method of forming the tablet is defined in claims 1, 9, 15 and 16, of the patent in suit, which claims are as follows:

"1. The method of forming a record of sounds by impressing sonorous vibrations upon a style, and thereby cutting in a solid body the record corresponding in form to the sound waves, in contradistinction to the for-



154      mation of sound-records by indenting a foil with a vibratory style, or cutting a strip by vibrating it against a revolving disk cutter, substantially as described.

7. A sound-record consisting of a tablet or other solid body having its surface cut or engraved with narrow lines of irregular or varied form corresponding to sound waves, substantially as described.

8. A sound-record consisting of a tablet or solid body having its surface cut or engraved with a number of lines of variable cross-section, the irregularities or variations corresponding in form to sound-waves, substantially as described.

155      9. The method of forming a sound or speech record which consists in engraving or cutting the same in wax or a wax-like composition, substantially as described.

10. The sound or speech record cut or engraved in wax or wax-like composition, substantially as described.

15. The method of making a sound or speech record which consists in engraving or cutting in the recording material an irregular groove with sloping walls, the shape of the groove representing the sound vibrations, substantially as described.

16. The method of making a sound or speech record, which consists in cutting in the recording material a groove with sloping walls and of variable cross-section, the variations corresponding in form to sound-waves, substantially as described.

156      17. The sound-record in the form of an irregular groove with sloping walls cut in solid material, substantially as described.

18. The sound-record cut in wax or wax-like composition in the form of an irregular groove with sloping walls, substantially as described."

I have no hesitation in stating that Complainant's Exhibits Defendant's Records No. 1702 and No. 1823, were formed by cutting or engraving an original record in wax or wax-like material in exact

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conformance with the terms of each and every one 157  
of the claims mentioned, since it is perfectly clear  
that these defendant's records were formed from an  
original wax-like tablet, and no other method of  
forming a sound-record in a wax-like tablet is known  
to the art except the one of cutting or engraving the  
record after the manner defined in claims 1, 9, 15  
and 16, which method produces the sound-record  
defined in claims 7, 8, 10, 12, 17 and 18, quoted  
above. For the reasons given, I am clearly of the  
opinion that Complainant's Exhibits Defendant's  
Zon-O-Phone Records No. 1702 and No. 1823, were  
made from a record cut or engraved in wax or wax-  
like material, which record exactly embodied the  
invention described and claimed in the patent in 158  
suit.

In reaching this conclusion I have not overlooked  
the statement contained on page 2 of complainant's  
exhibit pamphlet entitled "The Zon-O-phone Is the  
Best Talking Machine," issued by the defendant,  
which statement is to the effect that

"The present Zonophone record is made by  
an entirely new process evolved from an ac-  
cidental discovery in our laboratory through  
which thousands of sound vibrations wholly  
lost before are now recorded with the most  
wonderful delicacy and with a faithfulness in  
detail absolutely unapproached by any other  
method."

Notwithstanding this claim by the defendants that 159  
their records are made "by an entirely new pro-  
cess," I would state that the Complainant's Exhibits  
Zon-O-Phone Records 1702 and 1823 possess in such  
a marked degree the characteristics invariably ac-  
companying duplicate records made from an original  
record engraved in a wax-like tablet in accordance  
with the claims of the patent in suit, that there is no  
doubt in my mind that whatever novelty there may  
be in the alleged "absolutely new process," such  
process nevertheless employed an original record cut  
or engraved in wax or wax-like material, as described



160 and claimed in the patent in suit, and that whatever novelty there may be in the alleged new process resides in some other step or steps than that employed in the formation of the original record, for that such original record was one cut or engraved in wax or wax-like material is so plain that no expert in the can be deceived.

(Signed) S. T. CAMERON.

Subscribed and sworn to }  
before me this 20th }  
day of May, 1902.

(Signed)  
[SEAL.]

REEVE LEWIS,  
Notary Public,  
District of Columbia.

161

IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE CO.

vs.

162 UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Patent No.  
341,214.  
(Sound-Records.)

Affidavit of E. D. Easton.

STATE OF NEW YORK, }  
County of New York, } ss.:

EDWARD D. EASTON, being first duly sworn, deposes and says: I am president and general manager of the American Graphophone Co., complainant herein, and as president have executed the bill of complaint. I personally conduct the negotiations of

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duly sworn, de-  
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uted the bill of  
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the said corporation and am familiar with the facts 163  
with regard to the same.

The manufacturing business now carried on by  
the Universal Talking Machine Manufacturing Co.,  
defendant herein, was formerly carried on by a New  
York corporation styled the "Universal Talking  
Machine Company." On April 6, 1900, this last  
named concern secured from complainant a license  
to manufacture *machines* adapted for operation with  
zigzag disk records, agreeing to pay therefor a  
royalty of 5 per cent. on the selling price of said  
machines. Complainant was not informed how the  
Universal Talking Machine Co. made its sound-  
records, understanding that it employed some secret  
process. 164

About seven months subsequent to the execution  
of this license, the president of the Universal Talk-  
ing Machine Co. informed complainant that this  
company was experimenting with a view to making  
zigzag records by the engraving process, and asked  
whether, in case the experiment resulted success-  
fully, it could procure a license under complainant's  
patents. No further application for a license was  
made, and complainant was never directly informed  
by the Universal Talking Machine Co. that it had  
adopted and was using the engraving process, al-  
though complainant long subsequently learned that  
it had been so doing.

During the greater part of the year 1901, the  
Universal Talking Machine Co. was financially em-  
barrassed, and unable to meet its obligations, in-  
cluding royalties due upon the machine license  
above referred to; and in or about November or De-  
cember, 1901, to satisfy judgments against it, its  
effects were all sold at Sheriff's sale. 165

Thereafter the defendant corporation (the Univer-  
sal Talking Machine Manufacturing Company) was  
organized by some of the persons who composed  
the Universal Talking Machine Co., and began in  
the first part of this year to engage actively in the  
business of making and selling machines and sound



166 records. Complainant did not immediately institute suit, because there were overtures on the part of the said defendant looking to negotiating a license, and a prospect for a time of settling without litigation the claim arising out of the infringement.

(Signed) E. D. EASTON.

Subscribed and sworn to }  
before me this 26th day }  
of May, 1902.

(Signed) ELISHA K. CAMP,  
[SEAL.] Notary Public,  
N. Y. Co.

(Endorsed)—U. S. Circuit Court, S. D. N. Y.—  
167 American Graphophone Co. vs. Universal Talk-  
ing Machine Manufacturing Co.—In Equity.—  
On Patent No. 341,214, Sound-Records.—Motion  
for Preliminary Injunction and Supporting  
Affidavits.—Elisha K. Camp, Solicitor for Com-  
plainant, 277 Broadway, New York City.—U.  
S. Circuit Court, Southern District of New  
York.—Filed Jun. 24, 1902.—John A. Shields,  
Clerk.

UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

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| 168 | AMERICAN GRAPHOPHONE COM-<br>PANY<br><br>vs.<br><br>UNIVERSAL TALKING MACHINE<br>MANUFACTURING COMPANY. | In Equity. On<br>Patent No. 341,-<br>214. Sound rec-<br>ords. |
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City and County of New York, ss.:

ALBURTUS H. WEST, being duly sworn according  
to law, on his oath says:

I am an attorney and counsellor at law of the  
State of New York, and also a solicitor of patents.



I have been engaged specially in the business of soliciting patents and bringing and defending patent suits in the various courts of the United States for more than the last ten years. I have given especial attention to the various litigations in regard to talking machines, and am familiar with the various decisions in regard to the patents of the American Graphophone, and especially Patent No. 341,214 granted to Bell & Tainter. 169

I have examined the decisions of the United States Circuit Court relative to litigation in which Letters Patent of the United States No. 341,214, issued May 6, 1886, to Messrs. Bell and Tainter, the patent in suit, was involved, and would state as follows: 170

The earliest cases involving the patent in suit are those brought by the complainant against the Edison Phonograph Works and against the United States Phonograph Company, in the United States Circuit Court for the District of New Jersey. Those cases were brought on the patent in suit No. 341,214, combined with patent No. 341,288 to Sumner Tainter, not in this suit. That litigation involved the question of who was the first inventor of various features patented therein relative to talking machines, and to the construction of the claims of said patents. The defendant companies operated under the patents of Thomas A. Edison. The cases were argued together at final hearing before Judge Green at Trenton, but were not decided at the time of his death in 1896. After his death the cases were compromised, as appears from the records in said Clerk's office. At the time these cases were pending there were also pending other suits brought by the companies holding the Edison patents against the American Graphophone Company and its officers and licensees in the District of Columbia, claiming that the articles manufactured by this last named company infringed Mr. Edison's patents. The compromise of the litigation, as appears from the testimony of Mr. Mauro, given in 1898 in another suit brought 171



172 by the American Graphophone Company *vs.* United States Phonograph Co. *et al.*, consisted in both parties consenting to decrees against them in the suits in which they were defendants respectively and in the exchange of reciprocal licenses under the litigated patents. This settlement and exchange of licenses occurred about the seventh day of December, 1896.

There was, therefore, no judicial decision upon the validity of the patents in these cases, the suits being settled and licenses exchanged for commercial, and other reasons, best known to the parties.

173 Claims 22 and 24 of this patent No. 341,214 were involved in the case of the American Graphophone Company *vs.* Amet, 74 Fed. Rep., 789, which was brought in the United States Circuit Court for the Northern District of Illinois, to restrain the defendant from infringement of the said patents. Amet was using a record purchased from the complainant and a toy reproducing machine, having a glass tube or arm carried on a loose joint so as to enable the nib on the end of the arm to travel across the record and intended to perform the function of imparting the vibration consequent upon the vertical undulations in the sound groove of the record, and thereby producing sound. The claims considered by the Court were claims 22 and 24 of patent No. 341,214, and are the only claims considered in the decision.

174 The main defense was that the defendant had purchased records licensed by the complainant and that such purchase released this element of the combination from the monopoly. The defendant contended that he, therefore, had the right to use, in connection with such record, the loosely mounted reproducer.

Judge Grosscup, in deciding the case, said as to this contention:

"I do not concur in this view;" and in construing the claims said: "The substance upon which the record is cut, and the reproducer thus loosely



mounted, by which it is enabled to follow the undulations of the groove, together constitutes an effective portion of the mechanism." 175

The question of the validity of any claims of either of these patents for a cut wax record as such was not passed upon, and was not a question which was before the Court. It is evident that, as the defendant pleaded a license, the validity of the patent did not seriously come in question. On motion for rehearing in this *Amet* case, Judge Grosscup, in granting the petition, said:

"On the hearing of this case it was not seriously disputed that the Edison invention did not include the record of Bell & Tainter. My opinion was predicted upon the assumption that Bell & Tainter's record was their own invention." 176

The decree in this case is contained in 74 Fed. Rep., page 1008, sustaining the validity of claims 22 and 24, "so far as they embody claims of a combination, the elements of which are (a) a grooved tablet or other body, having a sound record formed therein, substantially as described in the said Letters Patent, (b) a reproducer having a rubbing style loosely mounted so that it is free to move laterally, substantially as described in the said Letters Patent."

The Court in this decree seems to have intended to have limited as a part of the combination the record to one of the character described in the patent, viz., one with sloping walls and having vertical undulations in the bottom of the record groove. 177

The next case requiring consideration in which these patents were involved was the *American Graphophone Co. vs. Walcutt & Leeds*, 87 Fed. Rep., 556 (U. S. Circuit Court, Southern District of New York, Jan. 11, 1898).

This suit is for alleged infringement of patents No. 341,214 and No. 341,288, by the use of machines



178 known as "Duplicating Machines" for copying vertical undulating records from the master record and forming an exact counterpart thereof. The record was made on the machine by mechanical means from another record called the "Master Record," and the issue was as to whether the making of copies of vertically undulating sound records on this duplicating machine by means other than the impact of sound waves on a diaphragm vibrating the stylus is an infringement of complainant's patent No. 341,214.

The case went to final hearing and the decision of Judge Wheeler was in favor of the complainant, and an injunction issued. I am familiar with this case, 179 having been the solicitor and counsel for the defendants. The only defense interposed in the case was that the copies of the sound records made by the defendants were made by them by means of a phonograph purchased from licensees of the complainant to which the defendants had added an additional mechanical attachment. I was also the solicitor and counsel of the corporation Walcutt & Leeds, Limited, in the suits brought against them by the American Graphophone Company on Patents Nos. 341,214 and 241,288. The two suits were practically the same. The first suit was against Mr. Walcutt and Mr. Leeds as a partnership, and the suit against the corporation was similar in character. Walcutt and 180 Leeds incorporated their business for the purpose of raising money to extend it, and the decree against them individually was followed, as a matter of course, by a similar preliminary injunction against the corporation.

Judge Lacombe based his decision entirely on Judge Wheeler's decree. At the time he settled his decree he said he would "confine it to the four corners" of Judge Wheeler's decree. I interposed no objection to such a decree against the corporation, as the business of the corporation was the same as the business formerly carried on by the partnership, and there was no intention either on my part, or on



that of either Mr. Walcutt or Mr. Leeds, to attempt 181  
to avoid the effect of the decree in the first suit.

This suit was founded on the claims of two  
graphophone patents 341,214 and 341,288, that were  
claimed to cover a cut or engraved record in a wax  
or wax-like substance as a product. Messrs. Wal-  
cutt and Leeds in their business dealt in phono-  
graphs and graphophones and supplies and musical  
records. All their machines were either purchased  
from the Graphophone Company or the National  
Phonograph Company, which has a license under  
the said patents. Some of the records sold by them  
were made by means of sound waves directly im-  
pinging on the diaphragm of the phonographs and so  
recorded on the metallic soap blanks purchased by 182  
them from the National Phonograph Company, and  
others were made by copying the indentations of  
such records upon other blanks mechanically. The  
suit was brought to enjoin the defendant therein  
from making and selling the so-called duplicates.  
In making these duplicates Walcutt & Leeds used  
two phonographs connected mechanically. Upon  
one of those was placed the sound-record, and a  
copy of it was made mechanically on a blank cylin-  
der placed on the other. The only question raised  
in the testimony or the briefs in the case was as to  
whether the use of phonographs to make a copy of  
sound record was outside of the normal use of the  
phonograph, so that such use was not covered by 183  
the license implied from the sale of the instrument.  
The American Graphophone Company claimed that  
as their patent covered the product of the machines,  
Walcutt & Leeds had no right to produce that prod-  
uct by the use of a licensed machine with a  
mechanical addition to it. Judge Wheeler sustained  
this claim, and enjoined Walcutt and Leeds from  
making these copies in the above mentioned manner  
and in the other suit Judge Lacombe, as a matter of  
course, made a similar decree against the corpora-  
tion. In neither of the suits was any point made  
either on the record or in the briefs, than the points



184 above explained. The argument was confined to that one question. It was also taken for granted that patents Nos. 341,214 and 341,288 covered cylinders capable of producing sound, whether made in the manner described in the patent, or otherwise. For the purpose of the argument it was also assumed that a soap blank having on it indentations capable of producing sounds was an equivalent to the sound-record in a wax or wax-like substance as described in that patent. Also the validity of the two said patents was not contested. They are very generally disputed and have never had their validity established in any suit where a full *bona fide* defense was made. The only suit where a full  
 185 *bona fide* defense was made respecting the validity of claims 7, 10, 17 and 18 of said patents (341,214) was the one in the New Jersey Circuit Court against the Edison Phonograph Works, and the Graphophone Company compromised and settled that case. My clients, Walcutt and Leeds, had not the money to go into the case on the merits of the patents, so I made no attack on them.

It is evident that both those points and many others might have been raised in that or a similar case, but we confined the question at issue entirely to the one point above stated. In support of the above statements I could refer to the record and briefs in the above cases, which, I understand, are  
 186 to be used at the hearing of the motion for a preliminary injunction in the above mentioned suit.

It is, therefore, clear that while Judge Wheeler enjoined the defendants and reviewed somewhat the claims 7, 8, 10, 17 and 18 of Patent No. 341,214, and claims 1, 4 and 37 of Patent No. 341,283, his decision cannot be understood to sustain all these claims *upon a full review of the prior art*.

It would also seem that Judge Wheeler had a misconception of Judge Grosscup's decision in the *Amet* case (74 Fed. Rep., 789). From a careful reading of the decision Judge Wheeler does not seem to sustain any particular claim in his decision,



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but merely to hold that "the defendant appears to 187  
 have taken the substance of these improvements,  
 and not merely to have used a different one."

It is clear from the examination of the record  
 that the Court did not have the prior art before it,  
 and could not therefore, intelligently pass upon the  
 validity of the claims.

The next case of importance is that of the Ameri-  
 can Graphophone Co. *vs.* Loring Leeds, 87 Fed. Rep.,  
 873 (U. S. Circuit Court, Southern District of New  
 York, June 18, 1898).

The patent involved was No. 341,214, and the  
 claims considered and passed upon by the Court  
 were claims 19, 20, 21, 22, 23, 24, 37 and 38.

Claims 19, 20, 21, embodied the loosely mounted 188  
 reproducing style adapted to the record; claim 22  
 embodied the graphophone record and loosely  
 mounted reproducing style; claim 23 embodied the  
 record and reproducer with the universal joint.

Claim 24 embodied the wax record and repro-  
 ducing style.

Claims 37 and 38, which were declared void, em-  
 bodied the hinged reproducing style.

The defendants in this case were using a grapho-  
 phone record with a loosely mounted reproducer  
 embodied in a cheap machine, identical with the  
 machine employed by the defendants in the Amet  
 case. Judge Shipman granted an injunction on  
 claims 19 to 24.

I understand from a careful reading of this de- 189  
 cision that Judge Shipman did not intend to pass  
 upon the validity of any claims of Patent No.  
 341,214, for the cut wax record independently and  
 apart from the machine. While in passing he speaks  
 of the adoption of the cut or engrossed record in the  
 form of a groove with sloping walls in waxy sub-  
 stance, he treats of the invention as a combination  
 or "dual invention." He says, page 873:

"The material of the record and the repro-  
 ducer are each necessary parts of the invention.  
 Either part without the other would be in-



190 effectual, but in combination both tend to make an operative and successful instrument."

He says, page 876:

" — the cutter (the reproducer) was brought into being to make the former (wax record) of practical value."

The Judge also says, page 876:

" Each member of the combination was new, the result was new, and was not attained by the application of an old device to a similar subject."

191 The Court construes claims 19-24, to include the "two improvements":

(1) "the new material for sound record upon which *vertically* undulating walls are engraved by a cutting style;

(2) "and the reproducer which rested upon these grooves by gravity, and moving along thereon, imported to a second diaphragm the vibration incident to the elevations and depressions of the bottoms of the grooves."

It seems clear that the case of American Graphophone Co. *vs.* Leeds does not adjudicate the question of the validity of any invention of Bell and Tainter for—

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(a) Second records of wax-like material; or

(b) The cutting of sound records in wax-like material.

Further:

1. No claim for (a) or (b) was before the Court.

2. A careful study of the decision shows that the Court treated and considered the subject matter of the claims as a combination.



The Judge says, page 876:

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" — the latter (the reproducer) was brought into being to make the former (engraved record) of practical value, —."

He further said, page 877:

"I fully agree with Judge Grosscup's idea of the patentable character of the combination which appears in these claims, and concur with him that any device which combines the reproducer described in claims 19 to 24 with the grooved tablet, or other body having a sound record *as described in the patent*, and especially in claims 22 and 24, is an infringement of the patent in suit."

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The decree followed the decree in *Amet* case.

See 74 Fed. Rep., 1008.

In the case of the *American Graphophone Co. vs. National Gramophone Co.*, 90 Fed. Rep., 824, a preliminary injunction was granted against the defendants for selling machines having a reproducer mounted on a universal joint used in connection with a laterally varying record. This decision was based by Judge Lacombe on his understanding of the decision of Judge Shipman in *American Graphophone Co. vs. Leeds* (87 Fed. Rep., 873). The United States Circuit Court of Appeals, however, in a decision delivered by Judge Shipman (92 Fed. Rep., 364), shortly after, reversed the decision of Judge Lacombe, on the ground that the Leeds case was not intended to go so far as to include in the construction of the claims a sound record other than that referred to in the decision, viz., one with vertical undulations in the base of the grooves. The Court stated that: "The adjudication in the Leeds case "was not an adequate basis for an order for injunction *pendente lite* against Berliner device, for it relates to the infringement of claim 21 by the use of the dual improvements of Bell & Tainter, and "was not intended to go further and decide the

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- 196 "status of the device which did not contain a tablet  
"of their new material for a sound record."

Other cases than those hereinabove mentioned have been brought in which the Patents No. 341,214 and 341,288 have been involved, but in none of these other cases has the validity of the claims for the cut wax record as such been passed upon. The decisions in all these other cases have turned upon the peculiar circumstance of each case outside of the question of the validity of the patent.

The other cases not hereinbefore referred to are

American Graphophone Co. *vs.* Hawthorne *et al.*,  
92 Fed. Rep., 516:

- 197 In this case the defendants did not contest the validity of the patent or the infringement.

American Graphophone Co. *vs.* American Talking  
Mach. Co. *et al.*, 97 Fed. Rep., 729:

The issue in this case was as to the effect of an alleged license. The scope or validity of the patent was not considered.

American Graphophone Co. *vs.* Leeds, 77 Fed.  
Rep., 193:

This case involved only the same question as the *Amet* case, viz., whether a specially constructed reproducer in combination with a vertically undulating record as covered by claims 19 to 24 of the patent.

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In the case of American Graphophone Co. *vs.* Hawthorne, 92 Fed. Rep., 516, it was not shown that the defendants made records, but merely made a machine for duplicating from a master record, which defendants claimed was no infringement of the patent in suit, No. 341,214. The defendants did not dispute the validity of the patent. In deciding the case Judge Dallas said:

"The letters and the bill of the defendants, Hawthorne and Shebley, to the Allen Phonograph Company, show a sale by the former to

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the latter of a machine which cannot be used 199  
for any purpose except to make duplicates of  
sound records described and claimed in the  
patent in suit; and the validity of the patent,  
and that the unlicensed making of such sound  
records would violate it, being considered  
there is no room for question that this sale of  
a machine, which is admitted by the affidavits  
of Hawthorne and of Shebley, was a du-  
plicator, constituted an infringement."

It is thus clear that in this case there was no de-  
fense presented other than the contention that the  
sale of a duplicating machine of itself was not an in-  
fringement.

From the foregoing decisions it will appear that 200  
it has never been decided that a wax record having  
vertically undulating grooves with sloping walls  
engraved by a cutting style is the patentable equiv-  
alent of a cut wax record with laterally undulating  
groove of even depth.

Judge Shipman, in the said case of American Gra-  
phophone Co. *vs.* Leeds claims, said:

"The two improvements of importance 201  
with respect to claims 19 to 24, inclusive, are  
the new material for a sound record upon  
which vertically undulating grooves with  
sloping walls were engraved by a cutting  
style; and the reproducer which rested upon  
these grooves by gravity, and moving along  
them, 'imparted to a second diaphragm the  
vibrations' incident to the elevations and de-  
pressions of the bottoms of the groove."

So particularly does he describe the character of  
the record in mentioning the elements of the claims  
that no one could contend that the Judge intended  
to have it understood that he included in his inter-  
pretation of these claims records of all characters  
and descriptions.

In fact it has been decided by Judge Shipman in  
the United States Circuit Court of Appeals in  
American Graphophone Co. *vs.* National Gramo-



202 phone Co., 92 Fed. Rep., 364, reversing Judge Lacombe, that the decision in the Leeds case was not intended to go further than to include in the construction of the claim a sound record other than that referred to in the decree, of vertically undulating grooves, and the Court refused to continue a preliminary injunction granted by Judge Lacombe where the defendant's record was a gramophone record having the laterally undulating grooves of even depth.

203 "The adjudication in the Leeds case was not an adequate basis for an order for an injunction, *pendente lite*, against the Berliner device, for it relates to the infringement of claim 21 by the use of the dual improvements of Bell and Tainter, and was not intended to go further and decide the statute of a device which did not contain a tablet of their new material for a sound record. The order of the Circuit Court is reversed, with costs."

In the National Gramophone Co. case, 92 Fed. Rep., 364, he plainly says he did not so intend.

204 This present case is the only case in which the laterally undulating record has been brought before the Court for a preliminary injunction on the charge of infringement of the claims to which the claimant has limited itself in this case. The Court of Appeals has said in the National Gramophone Co. case that there has been no such prior adjudication of the claims of this patent to warrant a preliminary injunction. In all the other cases which have been heard before the courts for alleged infringement of this patent in question, the defendants were using a record of the vertically undulating type; except one case against Eldridge B. Johnson, argued before the Circuit Court for the Eastern District of Pennsylvania, but which was compromised before decision was rendered, in which other claims of this patent, viz., 19 to 24, were in question.

It is understood from complainant's affidavits that

it consists of 7, 10, claims, decision employed record which the Court cases.

I sum up the patent

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it considers that the defendant is infringing claims 205  
7, 10, 17 and 18. In all these cases where these  
claims have been passed upon by the courts in the  
decisions herein referred to, the defendants were  
employing complainant's identical construction of  
record having the vertical undulations, and in all of  
which there were peculiar circumstances which led  
the Court to hold the defendant in the said several  
cases.

I sum up my investigation of the legal status of  
the patent as follows:

1. In no case were the claims of the Graphophone  
Company's patents alleged to cover out wax records  
independently of the special reproducing mechanism 206  
before the Court, except in the cases against Wal-  
cutt & Leeds, and in that case the Court record  
shows that the defense was a license and the validity  
of the claims were not and could not, under their  
defense of licenses be disputed.

2. The only cases in which there has been a de-  
cree for the complainant have been in cases where  
the defendants were using vertically undulating  
records, either alone or in combination with a loosely  
mounted reproducer.

3. In no case has there been a decision for the  
complainant where the defendants were using, 207  
making or selling laterally undulating records.

4. The Court of Appeals has decided in the Na-  
tional Gramophone Company case that the decision  
in the Leeds case is not broad enough to warrant a  
preliminary injunction against a user of a laterally  
undulating record in combination with a loosely  
mounted reproducer.

5. No decision has held a laterally undulating  
record or the method of making it to be an infringe-  
ment of the patent in suit.



208 6. The method claims of the Patent 341,214 have never been passed upon in any connection by a court.

7. No case has ever been before a court where the infringement charged was the construction of or making of a record which was not or could not be employed itself for reproducing sound.

209 8. In all the decided cases the defendants have employed a vertically undulating cylindrical record either (a) with a yielding arm, such as in the Amet case, and the Loring Leeds case; or (b) in conjunction with a copying lathe for making duplicate records from a "master record," as in the Walcutt and Leeds case.

I am informed and believe that the American Gramophone Company, the complainant in the above entitled case, under an agreement made with Joseph W. Jones, of New York City, either directly with him or through Philip Mauro, Esq., counsel for the said American Graphophone Company, owns or controls United States Letters Patent No. 688,739, issued December 10, 1901, to Joseph W. Jones, for improved production of sound-records.

210 I am aware of a bill in equity filed on January 7, 1902, in the name of the said Joseph W. Jones, the complainant, against the defendant in this present suit. I find that the said suit is brought for alleged infringement of the said Jones patent No. 688,739.

The claims of this patent read as follows:

"1. The herein-described method of producing sound-records, which consists in cutting or engraving upon a tablet of suitable material, by means of the lateral vibrations of a suitable stylus, a record-groove of appreciable and practically uniform depth, and having lateral undulations corresponding to the sound-waves, next coating the same with a conducting material, the forming a matrix thereon by electrolysis, and finally separating this

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matrix and pressing the same into a tablet of suitable material, substantially as described. 211

"2. The process of producing commercial sound-records of the type indicated, which consists of first preparing a flat tablet or disk of soft wax-like material, then engraving thereon by means of the lateral vibrations of a suitable stylus a record-groove of appreciable and uniform depth and having lateral undulations corresponding to sound-waves, next rendering the surface thereof electrically conductive, then forming a matrix thereon by electrolysis, next separating the matrix from the original record-disk without the use of heat, and finally impressing said matrix into a disk of suitable material to form the ultimate record, substantially as described." 212

I have examined the file wrapper and contents of the application of this Jones patent, No. 688,739, and find that the application was filed November 19, 1897.

I find that Philip Mauro, Esq., the counsel for the American Graphophone Company, was on March 13, 1900, given an associate power of attorney to conduct this application, and, therefore, all arguments and amendments, which were very elaborate, were filed by Mr. Mauro.

Certain anticipations were cited by the Patent Office and the claims rejected repeatedly on the basis of these anticipations which were very similar, if not identical, to the things claimed by the applicant, some of the references differing only in that they showed vertical undulating records while the applicant's alleged invention called for laterally undulating records. 213

In order to differentiate the applicant's alleged invention from the said reference, Mr. Mauro, who is the attorney for the American Graphophone Company, in prosecuting this application, which I am informed is now controlled by the said American Graphophone Company, although nominally still in the name of Joseph W. Jones, filed extensive and



- 214 elaborate written arguments, showing the distinction and difference between the vertically undulating records of the Bell & Tainter patent No. 341,214 and the laterally undulating records of the applicant, both of which were made in wax.

The following is an abstract from the argument of Mr. Mauro, filed August 13, 1900:

"PRIOR PRACTICAL ART."

"At the date of this application, and disregarding for the moment the Rosenthal & Frank patent (which will be considered later), all sound records were made in either one of two ways exclusively:

- 215 By the vertically engraving method of Bell & Tainter's graphophone (the vertically indenting method of the 1877 tin-foil phonograph having been obsolete upwards of twenty years); or by the *etching* method of Berliner's gramophone. Graphophones had been used to an enormous extent and graphophone records produced by the million, and the same is true to a less extent of graphophone and gramophone records. This is matter of common knowledge. It is also matter of common knowledge that no other records and systems were in practical existence. The more those, skilled in the talking machine art, studied to produce improved records of the gramophone type, the more attention was devoted to developing the etching process—advances were made in the material of the plate to be etched, in the 'resist,'
- 216 in the treatment of the resist while the record was being reached, in the etching-bath, the "sound-box," and other apparatus for making the original "tracing" to be etched, &c. This is evidenced by reference to the list of patents successively applied for and granted in this branch of the art, and whoever attempted to follow in the course thus blazed out of the efforts of painstaking inventors would be led further and further away from the idea of producing a record "consisting of a groove of uniform depth and having undulations corresponding to sound-waves" by means of the engraving method

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(see the Telephone Cases, C. D. 1888, 321; 217  
Edison Co. vs. U. S. Co., C. D. 1892, on page  
611, and other cases with which the learned  
Examiner is familiar).

Similarly the more those skilled in the art  
endeavored to improve the engraving system  
of producing records the more stress was laid  
on developing the vertically cutting method,  
and on producing improved records of that  
type, *i. e.*, having vertical irregularities. An  
examination of the successive patents in this  
branch of the art will emphasize this: They  
show changes in the shape and in the manner  
of mounting the stylus, always adapted to  
obtaining the best results in cutting down ver-  
tically to produce a record-groove character-  
ized by vertical irregularities; in the construc- 218  
tion and mounting of a diaphragm to vibrate  
to and from the surface of the tablet, and in  
the complete apparatus, with the same end in  
view--for instance, in the construction of the  
carriage for carrying the recorder-head so as  
to hold it in position for such operation, in  
determining the best angle at which the stylus  
must be presented to the tablet, &c. In all  
these and a hundred more details the fact that  
the diaphragm must vibrate *to and from the*  
*tablet* and the recorder must cut *downwards*  
(to produce vertical irregularities), is always  
either expressly stated, or (more significant)  
is plainly in mind and taken for granted as  
being the *only* way. The conclusion is irre-  
sistible that one who follows the course taught  
him by the patents and other literature of the  
"engraving" system would naturally turn 219  
his efforts towards producing a vertically cut  
record. And "the record of this case clearly  
establishes the truth of this proposition"  
(Edison filament case, *supra*). With the ex-  
ception of the Rosenthal & Frank patent, not  
a single patent or other publication has been  
cited that described an *engraved* sound-record  
characterized by lateral *undulations* of uni-  
form depth, or the method of producing such  
records.

At this point, then (again postponing con-  
sideration of Rosenthal & Frank), Jones un-  
dertakes to produce an original record of the  
type commonly known as gramophone, but



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better than the etched gramophone records; to do so he turns his back squarely on the essential etching step of the gramophone process, and thereby avoids the objections due to that step; and at the same time he turns aside from the idea of cutting *downwards*—the vertical *engraving*, so insistently prominent in the graphophone system. In the vertical engraving of the latter the resistance to be overcome by the recorder varies practically as the cube of the vibration-length of the stylus—in other words, when a strong impulse is given to the diaphragm, the stylus, instead of making a corresponding deeper cut, makes a cut less deep proportionately (owing to the greater proportionate resistance) than when a feeble impulse is given.

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By Jones' process the resistance varies *directly* as the length of the vibration. Jones, then, steers a middle course between the Bell and Tainter and the Berliner systems. He obtains a novel product, and original record similar to—but better than—the Bell and Tainter record by a novel process entirely different from the Bell and Tainter method in that the *downward* cutting—the *vertical* irregularities—are not present, and the resistance is invariably exactly equal to the wavelength or the strength of impulse. In other words, by a decided change for the better in one existing process, he produces an article that is entirely different from and an improvement upon any article produced by the only two existing methods. Concededly both this original record and the process of making it are *novel*; and, in view of the history and divergent development of the two existing branches of the art, and bearing in mind the doctrine of the Edison filament case, *supra* (C. D., 1892), it must be admitted that the creation of this method and this record involved *invention*. The Examiner has practically acknowledged this by no longer citing any reference except Rosenthal & Frank."

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The following is an extract from the argument of Mr. Mauro filed in the said application, February 2, 1901:

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“Again, applicant is the very first person 223  
to employ a cut or engraved record of uniform  
depth in *any practical or commercial way*.  
This we think is very important. The idea of  
making and utilizing such a record must  
have existed in many minds ever since the  
Bell & Tainter patent; but it had remained  
undeveloped and unemployed. That the  
whole process of making a zigzag record in  
hard material could be simplified, the entire  
etching operation with all its expense and  
difficulties cut out, and a better result ob-  
tained, by going back to the starting point,  
and beginning by engraving a record of uni-  
form depth, was an inventive idea of conspic-  
uous merit.”

“We submit, therefore, that the objection 224  
of no invention is not supported, but on  
the contrary is refuted by all the material  
facts and considerations. The invention here  
presented is a veritable improvement in the  
art, ranging far higher in merit than many  
patented inventions. It is an art in which  
slight differences have been, and should be,  
recognized as patentable.”

The application was finally allowed after the filing  
of lengthy arguments, and also after oral inter-  
views.

I have carefully studied the depositions and affi-  
davits, including all the motion papers filed by the  
complainants on this motion for preliminary injunc- 225  
tion. While in my opinion complainant's proofs  
are utterly inadequate and insufficient to establish  
what the defendant has done, or is doing, I shall  
here consider the patent, its claims and the alleged  
infringement.

The claims in suit alleged to be infringed may be  
divided into two groups, namely, those for the  
method comprising 1, 9 and 15, and those for the ap-  
paratus comprising claims 3, 4, 6, 7, 10, 17 and 18.  
As the method depends upon the function of the  
style in its action upon the wax tablet, and as the  
“sound record” of claims 7, 10, 17 and 18 is also a



226 function of the "style," I will first consider the requirements thereof.

The style of the Bell & Tainter patent is set forth as a small engraving tool capable of engraving a fine groove one one hundredth of an inch deep and according to the commercial graphophone records one one-hundredth of an inch in width also. It is an exceedingly well defined pointed affair and penetrates the waxy surface of the record tablet to engrave it. These patentees recognize that the well known tin foil records of Edison were not suitable for commercial purpose for the reason that they were not easily interchangeable and prevented the grooves being sufficiently close together to secure a  
 227 sufficiently long record upon a given phonogram or tablet. They were simply endeavoring to overcome the objections which were commercially known to them in the Edison tin foil records.

In succeeding in making an engraved record of exceedingly fine grooves they found difficulty in using the usual mechanical feeding devices for positively feeding the reproducer over the record or the record over the reproducer, because the grooves of the record being so fine and so close together, the ordinary irregularities of the record groove, the displacement of position when resetting the record tablet on the revolving disc or other cause made it practically impossible to insure the style of the  
 228 reproducer following the record in the groove, so these patentees introduced in the hinged arm carrying the reproducer an auxiliary flexible or universal joint *close to the reproducer* so that its style could by gravity ride down the sloping sidewalls and track in the bottom of the shallow groove, even when the independent mechanical feeding screw might otherwise tend to keep the style out of the centre of the groove. This improvement prevented the destruction of the record and also insured good reproduction in an apparatus which would otherwise have proved practically useless. This combination was made effective because of the special

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form of the grooves of the record which were per- 229  
haps new with Bell and Tainter, namely:

The formation of grooves arranged close together and having sloping sidewalls which coalesce to form ridges as a dividing line between the said grooves and with vertical undulations in the bottom or active portions of the grooves, whereby the style will always be required to "gravitate to the bottom of the groove."

The only record groove I find described in their patent is one in which the "record" or undulations is formed in the bottom, and this is bounded on the sides with sloping walls whereby the style will "gravitate to the bottom of the groove" to receive the vibrating influence of the undulations cut or en- 230  
graved therein. No other form of engraved record is described as within their invention, and certainly no record groove is contemplated involving the idea of uniform depth and lateral undulations, because (1) it is not described, either in specific or generic language, and (2) such a groove is incompatible with the type of apparatus set out and described.

Whether or not Bell and Tainter thought they had made an invention broadly involving the idea of engraving a wax record, irrespective of the character of record, the fact is that they were by no means entitled to make any such claim because of the prior work of Edison, Lambrigot, Weyher, and 231  
others. There does not seem room at the date of their invention for laying the foundation for a claim of that scope. The records of the Patent Office in 1886 were not very complete, and it is quite possible that much of the prior art was unknown to the Examiner. This is evidenced by the insufficient reference to the prior art found in the Bell and Tainter patent, to wit:

"Heretofore the vibrating style has, as in  
"Edison's well-known phonograph, simply  
"indented the recording material. It has  
"been proposed to cut the record in the edge  
"of a strip of metal or other solid material by



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"vibrating the strip in contact with the cutting edge of a rotary disc cutter."

This reference to the prior art is misleading, because the tin foil record of Edison is only one type of record developed by Edison, and the disc cutter device (Reynolds patent 287,166 of 1883) is only a small portion of the prior art on this subject of engraving a record. Immediately following that statement of the prior art, the patentees say with regard to the engraving method, alleged to have been developed by them:

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"Under this part of the invention are included the vibratory cutting style, as a new device in a sound recorder."

This is the substance of claims 3 and 4, and in my opinion is fully disclosed in the prior art referred to later on in this affidavit.

234

Regarding the operation of such cutting or engraving style in producing the records, the patentees describe its function as "The removal of material "to form the record by a cutting, gouging or graving action of the vibrating style," and upon this function of the style they have based method claims 1, 9 and 15 and the structure claim 6. Further, on the ground that the record is cut as distinguished from the indentations of tin-foil they have made claims 7, 10, 17 and 18. Claims 7 and 17 do not specifically define the composition of the tablet, but claims 10 and 18 restrict it to a wax or waxlike composition. In any event, I understand that it must be a composition which may be engraved under the impulse of the sound waves, and shall when engraved have sufficient hardness to enable it to be used in directly reproducing therefrom, which was of the essence of the invention of the patentees. In this respect they say:

"The invention consists, fifthly, in reproducing directly from the wax record. It is found that such record has sufficient

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“strength to withstand the rubbing action of 235  
 “the reproducing style so that a considerable  
 “number of reproductions can be obtained  
 “from it. \* \* \* So far as we are aware,  
 “no one has reproduced sounds from a wax  
 “record by rubbing a style or reproducer  
 “over it.”

This is, as I understand it, the object of Bell and Tainter in making a wax record. It was not to produce a wax record broadly, but a commercial wax record capable of being used over and over again in reproducing and capable of conjoint action with a reproducer as set out in claim 24 for example, wherein the wax record produced by the method and means of claims 1, 3, 4, 6, 7, 9, 10, 15, 17 and 18, 236 is combined with the reproducer or sound producing devices. That the wax record must have this producing capacity—due to hardness—to come within the invention of the Bell and Tainter's Patent No. 341,214, I will quote from the testimony of the complainant's expert Mr. Shelton T. Cameron, page 25 of complainant's record in the suit *American Graphophone Co. v. Berliner Gramophone Co. et al* on this same patent, brought in the U. S. Circuit Court of the Eastern District of Pennsylvania:

He says:

“The tablet of wax or waxlike material is 237  
 soft enough to enable the cutting or engraving style, when actuated by a force so weak as that of a sound wave to readily cut the undulatory groove therein, and is at the same time sufficiently solid to enable the undulations of the sound groove to actuate the rubbing style of the reproducing diaphragm without being themselves ironed out or distorted.”

It thus appears that the records of the claims in suit must contemplate engraving a wax record adapted to be used commercially for reproducing sound by directly operating the style of a repro-



238 ducer. I have carefully read the testimony of the witnesses Jones and Cameron filed in behalf of the complainant and upon which this motion is based, and I fail to find anything therein which indicates that the alleged wax record of the defendants was of a form capable of commercially reproducing directly. If complainants' showing were true it is not alleged that the defendants use a wax record for reproducing, and the evidence of these witnesses and the exhibits referred to by them show that the commercial records for reproducing are not wax at all.

239 A wax record which is most excellent for the Bell & Tainter machine or the machine made and sold by the complainants is totally unfit for use in the gramophone and I would say further that no wax record can be used with the Commercial Gramophone as made and sold by the defendants without its instant destruction. The object, therefore, of the complainants' patent could not be found to exist in the use of the defendant's machine. A further requirement of the record of the Bell & Tainter patent and the method of making it is found in the specific function of it in reproducing. It is the specific structure of the record groove which the patentees found as necessary in reproducing, and which is defined as follows: "Cutting or engraving the record in the form of a groove with sloping walls, the sound waves being represented by elevations and depressions at the bottom of the groove," 240 which has for its result, as stated in the patent, "No special care is necessary to insure adjustment, for if the reproducer K be allowed to rest against the record with the style upon the engraved line the style will of itself gravitate to the bottom of the groove"; that is to slide down the sloping walls and rest upon the undulations on the bottom of the groove. This requires the record groove to be one having sloping side walls and a *vertically* undulating record in the bottom of the groove. I understand that such a record tablet is necessary to the appa-

ratus described and here given and 18. required 9 and 1 the complaint not shown could use sloping walls such a structure reproduce that instead and lateration of lateral undulations for use by complainants in my opinion in the defendant's Bell & Tainter opinion structure 18 is not be used in the reproduction the record. Consider point of invention patent a defendant. Claims requiring a form, when the specific patent will survive.



ratus disclosed in the Bell & Tainter patent in suit, 241  
 and hence is the necessary understanding to be  
 given to the tablet of claims 7, 10, 17  
 and 18. It is also the character of groove  
 required to be cut by the method claims 1,  
 9 and 15. It is evident that the testimony of  
 the complainants' witnesses Jones and Cameron do  
 not show that the defendants make, or use, or  
 could use a record having vertical undulations and  
 sloping walls. It is quite clear that they do not use  
 such a structure and, moreover, could not use it to  
 reproduce with the Commercial Gramophone, as  
 that instrument requires a groove of uniform depth  
 and lateral undulations or sinuosities; it is the func- 242  
 tion of the complainants' patent to prevent any  
 lateral irregularities of the record. The laterally  
 undulating record used by the defendants is not fit  
 for use with the machines shown or set out in the  
 complainants' patent in suit, and for this reason,  
 in my opinion, the character of the groove employed  
 in the defendants' records is not contemplated in the  
 Bell & Tainter patent in suit. I am also of the  
 opinion that the method of claims 1, 9 and 15, and  
 structure of tablet required by claims 7, 10, 17 and  
 18 is not shown by the complainants' witnesses to  
 be used in the making of the defendants' records or  
 in the records themselves, whether used directly in  
 reproducing or as a matrix from which to duplicate  
 the records.

243  
 Considering the claims more specifically, I will  
 point out other distinguishing features between the  
 invention I find disclosed in the Bell & Tainter  
 patent and what is alleged to be employed by the  
 defendants.

Claims 7, 17 and 18 are each in language re-  
 quiring a record groove of "irregular" or "varied"  
 form, which is a structure of definite meaning  
 when these terms are considered in the light of  
 the specification and drawings of the Bell & Tainter  
 patent. If no vibration is given to the style, it  
 will simply cut a straight groove with sloping



- 244 walls and of uniform depth, and the adjacent grooves will more or less coalesce to form dividing ridges which will prevent the reproducing style being supported between the grooves. If now the diaphragm of the recorder be vibrated by sound the style will be caused to vary its depth of penetration in accordance with the amplitude of the vibrations. This causes the style to "cut" or "gouge" out the wax to a greater or less extent, making the cross section of the groove correspondingly different as we pass along its length. With respect to this the patentees say: "If one talks into the mouthpiece I, the style will be thrown into vibrations corresponding to the spoken words, and the engraved line will be of
- 245 "varying" character, the "inequalities" or "variations" from uniformity representing the forms of the sound-wave.

- I understand this to define the varied form or irregularities of the claim to mean a groove whose form in cross section is varied to produce irregularities in the groove and thus create the vertical undulations. These claims 7, 17 and 18 can relate to and include no other form of record, as no other form can be produced by what is set out in the Bell & Tainter patent, and there is no hint in the patent to any other form of record. The defendant's record groove is not a groove of this character, and is not a narrow "line of irregular or varied form" as called for by claim 7, nor is it an "irregular groove," as called for by claims 17 and 18.
- 246 On the other hand, it is a groove of uniform cross section and depth simply traced out of a relatively straight path. It is sinuous, as in the old Cross records or in the old phonautograph records, but it is, unlike the Bell & Tainter patent, a perfectly uniform groove, which, while when reproduced in a properly resisting substance, beautifully adapted for use with the type of machine known as the gramophone, is totally unsuited the type of machine shown in the Bell & Tainter patent, and consequently, in my opinion, is not included under the

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language of the claims thereof. I have expressed 247  
 this opinion without consideration as to the material or substance employed in the record or to the mode of making the record groove, because they are immaterial, and hence my opinion would not be changed even though the defendants actually used a record groove of this sinuous character and uniform cross section made in wax in any manner desired. The record groove of the gramophone record discs used for reproducing are uniform in cross section, and, as shown, are formed in composition which is not wax, and, therefore, do not embody the requirements of claims 7, 17 and 18 of the Bell & Tainter patent.

Claims 17 and 18 specifically require that the 248  
 groove shall have "sloping walls," and I have explained that these walls are to provide means for causing the reproducing style to slide down to the bottom of the groove by gravity, and track the vertical undulations of the record at that place. They also form, by coalescing, the ridges which present no surface which will support the style between them, and preventing it reaching by gravity the undulations in the bottom of the groove.

The record tablet used by the defendants has not such sloping walls, as it needs none and could not have them if desired, because on account of the lateral sinuosities of the groove the grooves would have their distinctiveness blotted out at a great many 249  
 places in the record. The side walls are made as upright and straight as possible, as they must be to cause the heavy arm, horn and reproducer to be moved across the record in the operation of the machine.

There is nothing in the record groove of the defendants that could perform the function of the sloping walls of the groove of the Bell & Tainter patent. Moreover, as the record that creates the vibration of the stylus is not in the bottom of the groove, there is no necessity for it being guided there. It is not guided there, because it is placed in



250 the groove at the start and the great weight on the style and the abrupt form of the side walls insure the style remaining in the groove under the same conditions at all times. Further, as the gramophone has no mechanical feeding mechanism for positively producing a relative feeding of the reproducer across the record there is no useful effect to be performed by any sloping side wall. The requirement of the "sloping" walls is very important in the Bell & Tainter machine, but absolutely useless, and, in fact, detrimental in the Gramophone machine. The walls of defendants' record must be abrupt, as they, in contact with the style, automatically project the reproducer across the record tablet without.

251 For these reasons the defendant's record, of whatsoever material and mode of manufacture it may be, does not, in my opinion, embody in its construction the structure of claims 17 and 18 of the Bell & Tainter patent in suit.

Aside from foregoing considerations above expressed, respecting the non embodiment of the record and engraving devices of the complainants' patent in the production of a record tablet by the defendant, I will further express the opinion that the structure and method set out in claims 7 and 10 are disclosed in prior patents and publications, and the following are my reasons for this opinion:

252 The Bell and Tainter patent uses a wax record tablet of cardboard, coated with a waxy substance, preferably composed of white beeswax and paraffine. There is nothing new in this, generically considered, and if it is to be a wax soft enough to be engraved and hard enough to be capable of reproductions by direct contact of the reproducer with it, as claimed by the complainant's witness Cameron, then it is wholly out of the question for the defendants to use a wax tablet with the Gramophone machine, for such is a commercial impossibility. That the complainants now seek to remove that limita-

tion as to other records used even if understood the Cameron. where average like material from from patent, and used by the recording only metal, the the necessity a reproducing structure being ing would, so as to necessary One of the other suits providing a record impact of the to cut or engraving record. The purposes can used for reproduction in fact can be alleged five to plausibly to the prior art their presence wax record. In Edison's the statement

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other reasoning could they contend that the defend-  
ants used their method and produced a wax record,  
even if intended for reproducing, and I have so un-  
derstood the testimony of their witnesses Jones and  
Cameron. The complainant's motion papers no-  
where aver that the defendant is using old or wax-  
like material capable of reproducing sound there-  
from from it directly in the manner described in the  
patent, and there is no averment that it has been so  
used by the defendant. If used, as alleged, for re-  
cording only, and for making a matrix therefrom in  
metal, the wax record would at once be relieved of  
the necessity of having to be hard enough to resist  
a reproducing stylus as in reproducing. This fea- 254  
ture being eliminated, the material used for record-  
ing would, of course, at once be made much softer,  
so as to relieve the recording stylus of all un-  
necessary resistance to secure the best results.  
One of Bell and Tainter's main arguments in  
other suits was that they solved the problem of pro-  
viding a record material hard enough to resist the  
impact of the stylus in reproducing and soft enough  
to cut or engrave by sound vibrations, a commercial  
record. The recording material for copperplating  
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used for reproducing sound directly therefrom and  
in fact can be quite soft. This being the case, the  
alleged five distinctions which enable Bell & Tainter 255  
to plausibly distinguish their record with respect to  
the prior art no longer exists and their claims under  
their present contention are broadly for an engraved  
wax record.

In Edison's English patent 1644 of 1878 he makes  
the statement:

"By extensive experiment and research, I  
"have been enabled to obtain very perfect  
"articulation and to produce a record in a  
"convenient form for preservation,"



256 and in describing the phonogram or record tablet he says it

" may be in the form of a disc, a sheet, an  
" endless belt, cylinder, a roller \* \* \*,"

and then sets out that the record groove may be

" either in straight lines, spiral, zig-zag \* \* \*,"

and that for future use

" the reproduction of the phonogram from a  
" matrix or copy in relief of an original pho-  
" nogram may be made \* \* \*."

257 This is evidence that Edison used discs and cylinders as records such as used at the present time. He did not restrict the use of his phonogram to reproduce sound, but used it for producing duplicates by electroplating and subsequent moulding.

He then describes the use of foil and states further:

" Paper or other material may be used, the  
" same being coated with paraffine or other  
" hydro-carbons, waxes, gum, lacs, and the  
" sheet so prepared *may be itself indented*  
" \* \* \*."

258 That the indenting point or style is a cutting style and produces in its effect an engraving action, is evident from the fact that Edison speaks of the possibility of it clogging with paraffine, this result taking place owing to the fact that at that early date he had not arrived at an absolutely perfect composition in the form of wax which could readily be engraved without more or less of it adhering to the engraving style of the recorder. But aside from the particular composition of wax compound, Edison did engrave it. It thus appears that Edison used a tablet comprising a circular disc of cardboard coated with wax or waxy substance, and having the record groove engraved or gouged therein in a

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spiral line, the said groove having sloping walls and a vertically undulating bottom, and being adapted to receive and operate upon a style of a reproducer of less size than the engraving or recording style which formed the groove, "so as to follow the bottom of the depressions without contact upon the sides," precisely as is called for in the Bell & Tainter patent in suit. Edison fully appreciated the importance of the engraved wax record, and even if his wax was not as hard as that of Bell and Tainter, the difference was only one of degree and would not—unless it be in the composition itself—require the exercise of the inventive faculties to produce a wax record *per se* over what was done by Edison. The possibility of inventing an engraved wax record began and ended with Edison's work as evidenced in his English patent 1644 of 1878, and there was no room left for further invention of an engraved wax record generically.

In the quotation from his English patent, the word "indenting" is used in connection with the engraving of the wax record tablet, and to avoid a misunderstanding as to the meaning of this word I would say that it is in full accord with the idea of cutting or engraving when applied to the article produced. The terms "indenting," "indentations" and "indented" used by Mr. Edison refer to the record grooves of the sounds formed on the tablet. Webster's Dictionary defines the word "indent" as "to notch," "to jag," "to cut into points like a row of teeth." "Indented" is defined as "cutting the edge into points or inequalities like teeth," "jagged," "notched." "Indentation" is defined as a "recess or sharp depression in any surface." It will be seen from these definitions that, when applied to the cavity of surfaces of the tablet such as employed by Edison in connection with pointed styles or recording points, the said terms would include the cutting or engraving as well as embossing features. With the tin foil the embossing resulted, but when the tablet was "coated



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250 the groove at the start and the great weight on the style and the abrupt form of the side walls insure the style remaining in the groove under the same conditions at all times. Further, as the gramophone has no mechanical feeding mechanism for positively producing a relative feeding of the reproducer across the record there is no useful effect to be performed by any sloping side wall. The requirement of the "sloping" walls is very important in the Bell & Tainter machine, but absolutely useless, and, in fact, detrimental in the Gramophone machine. The walls of defendants' record must be abrupt, as they, in contact with the style, automatically project the reproducer across the record tablet without.

For these reasons the defendant's record, of whatsoever material and mode of manufacture it may be, does not, in my opinion, embody in its construction the structure of claims 17 and 18 of the Bell & Tainter patent in suit.

Aside from foregoing considerations above expressed, respecting the non embodiment of the record and engraving devices of the complainants' patent in the production of a record tablet by the defendant, I will further express the opinion that the structure and method set out in claims 7 and 10 are disclosed in prior patents and publications, and the following are my reasons for this opinion:

252 The Bell and Tainter patent uses a wax record tablet of cardboard, coated with a waxy substance, preferably composed of white beeswax and paraffine. There is nothing new in this, generically considered, and if it is to be a wax soft enough to be engraved and hard enough to be capable of reproductions by direct contact of the reproducer with it, as claimed by the complainant's witness Cameron, then it is wholly out of the question for the defendants to use a wax tablet with the Gramophone machine, for such is a commercial impossibility. That the complainants now seek to remove that limita-



tion as to hardness is to be assumed, as upon no other reasoning could they contend that the defendants used their method and produced a wax record, even if intended for reproducing, and I have so understood the testimony of their witnesses Jones and Cameron. The complainant's motion papers nowhere aver that the defendant is using old or wax-like material capable of reproducing sound therefrom directly in the manner described in the patent, and there is no averment that it has been so used by the defendant. If used, as alleged, for recording only, and for making a matrix therefrom in metal, the wax record would at once be relieved of the necessity of having to be hard enough to resist a reproducing stylus as in reproducing. This feature being eliminated, the material used for recording would, of course, at once be made much softer, so as to relieve the recording stylus of all unnecessary resistance to secure the best results. One of Bell and Tainter's main arguments in other suits was that they solved the problem of providing a record material hard enough to resist the impact of the stylus in reproducing and soft enough to cut or engrave by sound vibrations, a commercial record. The recording material for copperplating purposes can be made very much softer than when used for reproducing sound directly therefrom and in fact can be quite soft. This being the case, the alleged five distinctions which enable Bell & Tainter to plausibly distinguish their record with respect to the prior art no longer exists and their claims under their present contention are broadly for an engraved wax record.

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spiral line, the said groove having sloping walls and a vertically undulating bottom, and being adapted to receive and operate upon a style of a reproducer of less size than the engraving or recording style which formed the groove, "so as to follow the bottom of the depressions without contact upon the sides," precisely as is called for in the Bell & Tainter patent in suit. Edison fully appreciated the importance of the engraved wax record, and even if his wax was not as hard as that of Bell and Tainter, the difference was only one of degree and would not—unless it be in the composition itself—require the exercise of the inventive faculties to produce a wax record *per se* over what was done by Edison. The possibility of inventing an engraved wax record began and ended with Edison's work as evidenced in his English patent 1644 of 1878, and there was no room left for further invention of an engraved wax record generically.

In the quotation from his English patent, the word "indenting" is used in connection with the engraving of the wax record tablet, and to avoid a misunderstanding as to the meaning of this word I would say that it is in full accord with the idea of cutting or engraving when applied to the article produced. The terms "indenting," "indentations" and "indented" used by Mr. Edison refer to the record grooves of the sounds formed on the tablet. Webster's Dictionary defines the word "indent" as "to notch," "to jag," "to cut into points like a row of teeth." "Indented" is defined as "cutting the edge into points or inequalities like teeth," "jagged," "notched." "Indentation" is defined as a "recess or sharp depression in any surface." It will be seen from these definitions that, when applied to the cavity of surfaces of the tablet such as employed by Edison in connection with pointed styles or recording points, the said terms would include the cutting or engraving as well as embossing features. With the tin foil the embossing resulted, but when the tablet was "coated



262 with paraffine or other hydro-carbon, waxes, gums or lacs," and directly subjected to the action of the recording style, the tablet was unquestionably cut, gouged or engraved with the proper irregularities to produce a groove having vertical undulations. The words "other hydro-carbons" found on line 27, page 7, of the English patent 1644, of 1878, would include a large variety of waxes and resins of various degrees of hardness, and which if used separately or in connection with the paraffine, might be employed to reduce a tablet having a wax or waxy composition of the desired hardness. Bell & Tainter used paraffine and beeswax, while Edison describes "paraffine or other hydro-carbons, waxes, gums or lacs" as the substances to use, and I therefore find 263 in the Edison patent a full disclosure of an engraved wax record or tablet such as called for by claims 7, 10, 17 and 18. I have included in this opinion claims 17 and 18, notwithstanding that they require "sloping walls" to the grooves, because, as I understand the complainants' insistment the sloping walls are to be taken in a generic sense, and in such they are fully disclosed in the Edison records of his English patent. Edison's patent, however, does not disclose the "sloping" walls, coalescing to form *sharp ridges* as in the case of the Bell & Tainter records, so that if the proper legal construction to be given to these Claims 17 and 18 requires such ridges, then they 264 may be said to distinguish from the Edison patent, but far more do they distinguish from the Gramophone record groove, and hence fail to include a record of the character used in defendants' tablet.

Edison's English patent 1644 of 1878 shows a sound record consisting of a tablet having its surface cut or engraved with narrow lines of irregular or varied form corresponding in sound waves, as called for by claim 7 of complainant's patent. For these reasons I am of the opinion that the claims 7, 10, 17 and 18 are for subject matter disclosed in the Edison English patent 1644 of 1878, said opinion being modified as to claims 17 and 18, if the legal

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construction requires them to include the sharp 265  
ridges at the coalescing boundaries between adjacent grooves.

I find that prior to the English patent of 1878 Edison had produced a recording phonograph for *engraving* the record. This was given to the public by an article in the *Scientific American* of November 17, 1877, and describes an engraved record in which the irregularities are such as to produce a vertically undulating record. Briefly stated, this article describes Mr. Edison's apparatus, or at least one form of it, as embodying a recording diaphragm operating "a small, chisel-shaped point," which indents or cuts the body of the material constituting the record, and which is subsequently used to operate a re- 266  
producer. This is also disclosed in his British patent 2909 of 1877. It thus appears that prior to his Patent 1644 of 1878 Edison had clearly defined ideas of cutting, gouging or engraving as the mode of forming the sound record on the tablet, and this was improved in his said 1878 patent by the addition of more suitable tablets of wax or waxy substances. As further evidence that cutting or engraving to produce the sound record was not new with Bell & Tainter, I will refer to some other publications. Shortly after the appearance of Edison's phonograph, Lambrigot produced a cheap type of phonograph, described in the *Engineering*, Volume 27, page 326, April 18, 267  
1879. Briefly stated, the record is first *cut* in a bar of *stearine wax* by a cutting style giving a vibratory motion by a diaphragm set in vibration, while the stearine bar is being moved under the style. The engraved wax record is then copied by an electrotyping process, and the electrotype employed for reproducing lead duplicate records which were subsequently used for reproducing speech. In this article it is stated:

"The upper surface of a rectangular prism  
"of glass or other hard and rigid material is  
"thickly coated with a stearine wax. \* \* \*



268

"This bar is then fixed into a simple phonographic instrument, which, by means of a screw, or other mechanical contrivance, traverses it at a suitable speed below a diaphragm. The diaphragm is rigidly held around its circumference by an annular frame work \* \* \* and is in every respect exactly similar to the diaphragm of an ordinary phonograph. To the centre of this diaphragm is attached a thin flat plate. \* \* \* When all is properly adjusted, and the temperature is so arranged as to give to the stearine surface a proper degree of hardness, to insure the best results, the handle of the instrument is turned, and at the same time words are spoken against the diaphragm, which immediately set up in it vibrations, which are communicated to the plate or style. While this is moving up and down, following the vibrations of the diaphragm caused by the voice, the stearine coating of the bar, *a b* is steadily drawn in the direction of the arrow below the vibrating bar." \* \* \*

269

It appears, therefore, that the tablet of glass coated heavily with wax is engraved by the cutting style and from this Lambrigot produced duplicates in lead by electroplating and pressure, as fully disclosed in the succeeding part of the article. Another description of Lambrigot's invention appeared in the *Journal of the Society of Telegraphic Engineers*, London, 1879, in Volume 8, page 303, and contains an addition to the description of the apparatus a very clear statement showing that the record was engraved in the wax.

270

The words are:

"It consists, in the first place, of a lead wire upon which certain impressions are engraved. The engravings are produced in the following manner: The phonograph, armed with a knife edge, instead of a point passing over a sheet of tin foil, passes over a bar of stearine. This bar of stearine receives the phonographic impression."

This arrangement, a diaphragm was used and therefore new in engineering time.

As a further Lambrigot, Microphone Paris, 1880.

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Aside from grooves having form shape fully disclose records, the vibration with a v or body ha therein, as called Tainter patent The French



This article indicates to me that the idea of a vibrating, a cutting style operated under the action of a diaphragm to engrave a record upon a wax tablet, was undoubtedly well known in the art at that time, and therefore, broadly speaking, there was nothing new in engraving a wax record at any subsequent time. 271

As a further evidence of the engraving process of Lambrigot, I would quote from *LeTelephone, Le-Microphone and LaPhonograph*, by DuMoncel, Paris, 1880, page 366.

"\* \* \* The apparatus consists of a flat piece of wood set up vertically on a base and fastened solidly. At the centre of this flat piece of wood, is a round hole, covered over with a sheet of well-stretched parchment, against which bears a *steel knife*, which should, like the point of the phonograph, trace the vibrations. A solid piece rises from the base to the centre of the flat piece of wood, and supports a slide, which permits a car to move round before this flat piece of wood. On this car is a rod of glass, one of the faces of which is covered over with stearine. By approaching the car, and causing it to go back and forth, the stearine comes into contact with the *knife* \* \* \*. When a sound is heard, the sheet of parchment is put into vibration and communicates its movement to the knife which penetrates into the stearine, and traces varied lines." 272 273

Aside from the particular shapes of the record grooves having the sloping walls and coalescing to form shape ridges, these Lambrigot publications fully disclose the method of engraving the wax records, the vibrating cutting style, and its combination with a wax body or tablet, and a wax tablet or body having the record cut or engraved therein, as called for by Claims 7 and 10 of the Bell & Tainter patent in suit.

The French patent, No. 135,688, dated March 20,



274 1880, to Charles Weyher for an improvement in continuous phonograph, states:

"The phonograph, for which I formulate  
 "the present application for a patent, \* \* \*  
 "is based in principle on the registering of  
 "the vibrations of a stylus on a fine wire of  
 "an indefinite length. \* \* \* The wire  
 "when passing \* \* \* traverses a small  
 "anvil placed beneath the vibrating stylus,  
 "which is nothing but a small *burin*, the *cut-*  
 "*ting* part of which is perpendicular to the  
 "wire. \* \* \*

"I desire by the present application for pat-  
 "ent to guarantee to myself \* \* \* a con-  
 "tinuous phonograph, the stylus of which, in  
 "the form of a burin, acts on a metallic or  
 "other wire, and impresses thereon the vi-  
 "brations to which it is itself subjected."

275

This description shows a clearly defined conception and embodiment of an apparatus for engraving sound records by means of a burin or engraving, and while the patentee's idea was to engrave a wire of metal, nevertheless, he says, "metallic or otherwise," and this would include a wire or wax-coated rod or other composition; and as wax was at his disposal in view of the prior patents to Edison and publications of Lambrigot's device, it would not, in my opinion, involve invention to use his engraving style to engrave a record groove in the wax instead of on metallic wire. A "burin" is an engraving tool, and is defined in Webster's Dictionary as  
 276 "the cutting tool of an engraver on metal used in  
 "line engraving. It is made of tempered steel, one  
 "end being ground off obliquely so as to produce a  
 "sharp point and the other end inserted into a  
 "handle. \* \* \*

This is exactly the vibratory cutting style of claims 3, 4 and 6 of the Bell & Tainter patent and is operated by sound waves to produce a vertical undulatory sound record precisely as required by the method claim 1, and by claim 9 assuming that the wax tablet of Edison or Lambrigot were substituted



for the wire. If such a burin as defined by this 277  
 French patent were used with the Edison wax tablets as described by Edison in his English patent 1644 of 1878 we would have the engraved wax tablets of the Edison patent with perhaps a little more sharpness because of the specially shaped engraving style. The record produced would be a line or groove of irregular or varied form having sloping side walls and a vertically undulating character of record and therefore it is my opinion that claims 7, 10, 17 and 18 of the Bell & Tainter patent disclosed nothing that was not fully disclosed in these prior patents. It certainly would not involve invention to substitute the engraving burin of the French patent in place of the style of the Edison patent, as such would be 278  
 merely adaptation, and the substitute of one well known equivalent for another and this would not involve invention in my opinion. At best, this is all they did, unless perhaps they arranged the adjacent grooves so close together as to make the sloping walls coalesce to form the ridgelike division between the grooves.

I would also point out that not only did Bell & Tainter copy the Edison card coated with wax as a tablet, but they also copied from his English patent 1644, of 1878, the circular form, the spiral tracing, and the general type of machine, differing in no material respect in introducing a universal joint close to and as a support for the reproducer on the 279  
 carrying arm used as an adjunct to the mechanical feed, which latter positively feeds the record past the reproducer. They perhaps more fully dilated upon the idea of engraving, but that was only a matter of degree; and if the engraving style of Edison was fully described such styles were certainly fully set out in the French patent and by Lambrigot long prior to the date of the invention of Bell & Tainter, leaving nothing for them to invent in the art of engraving a wax or other record generically.

Attention should also be called to the fact that



280 complainants' proofs distinguish the Berliner process of making records, referred to as the "etching" process, from the complainants' patent in suit, Mr. Joseph W. Jones testifies to having been engaged in the Berliner laboratory at one time.

This Berliner process of making records was patented to Mr. Emile Berliner May 15, 1888, by Letters Patent No. 382,790.

This patent states: "The etching ground which is to serve as the non-resisting medium for the phonographic record I prepare by dissolving beeswax, paraffine or other like substance in a suitable solvent." The patent then describes how this wax-like solution is prepared, and how the zinc plate  
281 subsequently to be etched is coated with the wax solution. The solvent immediately evaporates and leaves a fine film or coating of wax upon the metal surface, it being sufficiently soft to offer no perceptible mechanical resistance to the recording stylus. The specification also states that, "I ordinarily, but not necessarily, apply a second coating of the solution which, when dry, leaves a film of wax of such thickness as I have found to answer all requirements. A plate or cylinder thus prepared may be preserved indefinitely and is at all times in good condition to receive the phonautographic record."

The patent then describes how the recording is accomplished; it states: "Such record is produced by  
282 moving the prepared surface under a stylus actuated by sound-waves to remove an undulatory line of the non-resisting film from its support, whereby the latter is laid bare along a said line, as is fully described in my patent above referred to, and is now well understood by those skilled in the art." The etching acid is then applied and the unprotected portions etched in the metal. From this an electroplated matrix is produced for stamping in the rubber disc.

This is the Berliner etching process which Mr. Joseph W. Jones refers to, and which complainant has differentiated from the Bell & Tainter patent.

The Berliner process well known to have never been used in the process.

The reason for this is that the material, as it was not used from, and was too soft for any attempt to record.

What the defendant witnesses claim is that the thing, that material, electroplated in the wax-like plate. The case is that the matrix from coating it conductor.

The conclusion is that the one hand the process, an infringement hand charges showing is a proofs produced conclusion is In conclusion follows:

1. The claim 7, 10, 17 and except in case limited to the sharp ridges.



The Berliner records have been on the market, as is well known, for many years, yet the complainants have never sought to enjoin the Berliner etching process. 283

The reason is obvious that it was no infringement, as the wax-like coating on the metal plate was not used for reproducing sound directly therefrom, and could not be so used, as the wax coating was too soft to vibrate a reproducing style, and any attempt at the same would have destroyed the record.

What the complainants now seek to charge defendant with by their proofs is essentially, as far as the claims in controversy are concerned, the same thing, that is, recording sound waves in a wax-like material. In the Berliner etching process the electroplated matrix is made from the extra plate after the wax-like material has been removed from the plate. The charge of infringement in the present case is that the defendant forms the electroplated matrix from the wax-like material directly by first coating it with graphite or other suitable electric conductor. 284

The conclusion is therefore obvious that what on the one hand complainant differentiates as the etching process, and which it has never contended was an infringement of its patent in suit, it on the other hand charges infringement of what, according to its showing is apparently the same thing. From the proofs produced by the complainant the foregoing conclusion is inevitable. 285

In conclusion, my opinion may be summed up as follows:

1. The claims of the Bell & Tainter in suit Nos. 7, 10, 17 and 18 are anticipated by the prior art, except in case of claims 17 and 18, provided they are limited to the sloping walls coalescing to form the sharp ridges.



286 2. There was no room for a generic invention in engraving a sound record in wax or other material at the date of Bell & Tainter patent.

3. There is no evidence that the defendant used any apparatus or method or thing defined in the claim sued upon in the production of their record tablets.

4. That even assuming that there was a possibility of patentability being found in some of the claims over the prior art, still the construction of the defendant's alleged record tablet in the form of its groove and its mode of operation is so radically different from that of the record tablet of complainant's patent that it would be an impossibility to employ the invention of the complainant's patent in its manufacture.

I present as an exhibit with this affidavit a copy of Edison's English patent No. 1644 of 1878, marked with my initials and the words "Defendant's Exhibit No. 3."

I also present as an exhibit with this affidavit a copy of the file wrapper and contents of the Jones patent referred to above, marked "Defendant's Exhibit Copy Jones' File Wrapper and Contents, June 18, 1902."

(Sgd.) H. A. WEST.

288 Sworn and subscribed this  
18th day of June, 1902,  
at New York, before me.

LESLIE R. PALMER,  
Notary Public,  
N. Y. Co.

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UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

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AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,  
vs.  
UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

290

STATE OF NEW YORK, }  
County of New York, } ss.:

LOUIS P. VALIQUET, being duly sworn, according  
law, on his oath says:

I reside in the City of New York. I have been in  
the employment of The Universal Talking Machine  
Manufacturing Company since last January. I am  
familiar with the various methods of making sound  
records for talking machines, and have been so  
familiar for the last five years. I have experimented  
largely in making zigzag records, and am familiar  
with the records made by the defendant. The  
method of making records pursued by them is to  
make the original record on a plate covered with a  
soft composition, the composition of which is secret.  
After the record is formed in this composition it is  
electroplated, and a matrix is made. From that  
matrix the commercial record is stamped in a hard  
shellac compound. The substance in which the  
original record is made is so soft that it would be  
impossible for it to be used commercially for repro-  
ducing the sounds recorded upon it. The result of  
putting a reproducing needle in contact with it  
would be to entirely destroy the laterally varying

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292 undulations which correspond to the sound-waves  
recorded on the tablet.

(Sgd.) LOUIS P. VALIQUET.

Sworn to before me this 18th }  
day of June, 1902.

LESLIE R. PALMER,  
Notary Public,  
N. Y. Co.

# CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

293

AMERICAN GRAPHOPHONE COM-  
PANY,

AGAINST

THE UNIVERSAL TALKING MA-  
CHINE MANUFACTURING COM-  
PANY.

In Equity, on  
Patent 341,214.  
Sound Records.  
Claims 7, 10, 17,  
18.

County of New York, ss.:

FRANK A. CRANDALL, being duly sworn, deposes  
and says:

294

That he is the secretary of the defendant, and is  
conversant with its affairs. That relying upon its  
right to use and sell the sound-records manufactured  
by it, and talking machines in connection therewith,  
it has expended large sums of money, so that it now  
has a factory at No. 79 East One Hundred and  
Thirtieth street, in the City of New York, where it  
employs one hundred and fifty people; also a labora-  
tory at No. 52 East Twenty-third street, and offices  
at No. 23 East Twentieth street, both in the  
City of New York. It has invested large sums of  
money in the machinery, tools and materials used

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in its business. It sells a great many thousand records a month, and, in deponent's opinion, the serious nature of this motion lies wholly in the fact that so much money is involved, and such great damage will be caused to the defendant if by any means the motion for a temporary injunction should be granted, entirely irrespective of the ultimate determination of the suit, and even though defendant should be ultimately successful. If by any peradventure the ultimate determination of this action should be in favor of the complainant, deponent states that the defendant is a corporation having large means and resources, in all respects solvent, and able to respond in any damages that the complainant may at any time suffer, and account for any profits which might be desired in complainant's favor.

Deponent's attention has been called to the statement in the affidavit of E. D. Easton, one of the complainant's affidavits used in support of this motion, where the affiant, Easton, states that the complainant did not immediately institute suit when the defendant began to engage actively in the business of making and selling machines and sound-records, because there were overtures on the part of said defendant, looking to negotiating a license, and a prospect for a time of settling without litigation the claim arising out of the infringement. This statement of the affiant Easton deponent denies, in that defendant never made any overtures looking to negotiating a license, but on the contrary, the complainant's representatives very shortly after the defendant started in business, called upon the officers of the defendant, and solicited them to become the licensees of the complainant, alleging as a reason why the defendant should become such licensee, and pay a royalty for the right to manufacture and use sound records, that in that case the complainant would undertake, on other patents, or on other claims of the Bell and Tainter patent, and in other ways to curtail or enjoin the business of manufacturing and selling talking machines and sound



298 records conducted by one Eldridge R. Johnson,  
 who was the largest competitor of the defendant in  
 business, complainant suggesting a royalty of two  
 cents a record. The defendant, through its officers,  
 declined to negotiate such license, upon the ground,  
 then stated, to the complainant's representatives,  
 that the records manufactured, sold or used by de-  
 fendant did not infringe, and, in view of such fact,  
 that the defendant declined, even for the purpose of  
 stopping the business of a competitor, to make any  
 such admission by license or otherwise. In support  
 of this position, deponent states that the defendant  
 and its officers have at all times been advised by  
 counsel learned in the law that, in the first place,  
 299 the claims in question herein of the patent herein  
 were invalid; and, in the second place, that the  
 defendant's process did not infringe. These solicita-  
 tions of complainant ceased in the latter part of  
 February or the early part of March, 1902, and on  
 March 17, 1902, this action was begun. Thereafter,  
 but not until May 29, did the complainant make any  
 motion for a preliminary injunction.

FRANK A. CRANDALL.

Sworn to before me, this }  
 18th day of June, 1902. }

LESLIE R. PALMER,  
 Notary Public,  
 N. Y. C.

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## UNITED STATES CIRCUIT COURT,

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SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

302

STATE OF NEW YORK, }  
County of New York, } ss.:

GEORGE K. CHENEY, being duly sworn, deposes  
and says as follows:

I am familiar with the various methods of making sound records for talking machines, and have been so familiar for the last five years. I am employed by the defendant, and have charge of its laboratory and record making department at 152 East Twenty-third street, New York City, and have had charge of this department ever since May 4, 1901.

303

All of the original records are made by a method or process of my own, the details of which are known by no one else. The electro-plating is done by employees under my superintendence. The hard-disk records pressed from the electrotpe matrices are made by the Auburn Button Works, at Auburn, New York.

I am familiar with the Berliner etched records. They are hard-disk, zig-zag records, and have been upon the market for more than five years. Records



304 like those referred to in the affidavit of Joseph W. Jones have been largely upon the market for more than three and a half years.

In making such zigzag hard disk records, the original record, whether made by cutting or displacing, is electroplated with copper, the copper deposit removed, and used as a matrix or die for impressing the record in material which is soft when the impression is made, but subsequently becomes hard.

In making the original record I use a plate of soft composition composed mainly of tallow and other ingredients the details of which and the proportions I do not care to specify, as the same is a secret known only to me. It is a soft, saponified composition, so soft that it must be kept cool in warm weather, both in the electroplating bath and out of it. The original record could not possibly be used commercially for reproducing or rehearsing the sounds. If this were attempted it would destroy the record. In a record made with vertical undulations the pressure of the reproducing stylus against the inequalities of the record is much less than in a zigzag record, and, therefore, the same tablet may be used both for recording and reproducing. In a zigzag record, if the material of the tablet is soft enough to have the sound record made in it, it will be too soft to be used for reproducing the sounds.

306 In reproducing, the defendants use a reproducer or sound box like the exhibit marked for identification herewith "Defendant's Reproducer, June 17, 1902."

I produce as an exhibit with this affidavit a copper matrix electroplated from an original record in soft material by a process I use, in which the material is not cut nor removed in chips or shaving or other small particles. I have in my possession the said original record, which I will produce if requested by this Court. The composition of this original record is a secret which cost the defendant many thousands of dollars, and the process of making the record is also a secret which would be injurious to the

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24, 1902.



defendants' business to communicate to a business competitor like the complainant. I have scratched my initials on this copper matrix, and the words "Ex. 2." 307

I also produce, as an exhibit with this affidavit, a commercial record pressed in a shellac compound from this matrix, and have scratched on my initials, and the words "Ex. 3."

I also produce, as an exhibit with this affidavit, a zinc record, made by me by etching in the manner described in the Berliner patents, and have scratched on it my initials, and the words "Ex. 4."

(Sgd) GEORGE K. CHENEY.

Sworn and subscribed before me this 18th day of June, 1902.

308

LESLIE R. PALMER,  
Notary Public,  
N. Y. Co.

(Endorsed)—U. S. Circuit Court, Southern Dist. of N. Y.—American Graphophone Co., Complainant vs. Universal Talking Machine Co., Defendant.—Affidavits in Opposition.—H. A. West, Solr. for Defendant, No. 58 William Street, New York, N. Y.—Rec'd copy of the within papers at 12.45 P. M.—Dated New York, June 18, 1902.—E. K. Camp, Solr. for Compl't.—U. S. Circuit Court, Southern District of New York.—Filed Jun. 24, 1902.—John A. Shields, Clerk.

309



310 IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity No.  
8055.  
Sound Records.

Replication.

311

This repliant, saving and reserving unto itself all and all manner of advantage of exception to the manifold insufficiencies of the answer of the defendant Universal Talking Machine Manufacturing Company, for replication thereunto, says it will aver and prove its said bill to be true, certain and sufficient in the law to be answered unto; and that the said answer of the said defendant is uncertain, untrue and insufficient to be replied unto by this repliant; without this, that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true.

312

All which matters and things this repliant is and will be ready to aver and prove as this Honorable Court shall direct, and humbly prays, as in and by its said bill it has already prayed.

Dated New York City, June 27, 1902.

ELISHA K. CAMP,

Solicitor for Complainant,  
277 Broadway,  
New York City.

(Endorsed)—U. S. Circuit Court, S. D. N. Y.—American Graphophone Company v. Universal Talking Machine Manufacturing Company.—No.



8055.—In Equity, Sound-Records.—Replication. 313  
 —Elisha K. Camp, Solicitor for Complainant,  
 277 Broadway, New York City.—U. S. Circuit  
 Court, Southern District of New York.—Filed  
 Jun. 27, 1902.—John A. Shields, Clerk.

CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

|   |   |
|---|---|
| AMERICAN GRAPHOPHONE COM-<br>PANY,<br>Complainant,<br><br>AGAINST<br><br>THE UNIVERSAL TALKING MA-<br>CHINE MANUFACTURING COM-<br>PANY,<br>Defendant. | } |
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314

County of New York, ss.:

FRANK A. CRANDALL, being duly sworn, deposes  
and says:

That he is the secretary of the defendant herein, 315  
and also of The Universal Talking Machine Com-  
pany. The witness, Mr. George K. Cheney,  
whose affidavit is annexed to this affidavit, is  
under contract with The Universal Talking Machine  
Company, and is working under that contract. As  
to the complainant, the complainant heretofore  
licensed The Universal Talking Machine Company,  
under certain claims of the patents in question, to  
exclusively manufacture, use and sell machines de-  
signed to reproduce from zigzag records, although  
at that time it was understood that deponent's com-  
pany did not admit the validity of other claims of



- 316 the said patents, covering the process of making the records themselves, nor did the complainant at that time make any such claim, the latter claims being the claims in suit herein. It was, however, understood at the time that the right to manufacture, use and sell machines adapted to reproduce from zigzag records carried with it, as a necessary incident, the manufacture, use and sale, in connection with such machines, of zigzag records; and at that time deponent understood that the complainant did not claim, or could not sustain a claim, and that deponent's company did not admit the validity of the claims of the patents as to the process of making the records themselves; yet it was also understood at the time
- 317 the license was granted, that the right to manufacture, use and sell machines adapted to reproduce from zigzag records carried also with it, as a necessary incident, the manufacture, use and sale, in connection with such machines, of zigzag records. Notwithstanding this license, and some months since, the complainant having up to that time been engaged in the business of manufacturing and selling cylindrical records, and finding that the disc records were taking the place of such cylindrical records, began, in violation of such exclusive license, to manufacture, use and sell, on its own account, machines adapted to reproduce from zigzag records, against which deponent's company then did protest, and ever since
- 318 has protested. Owing, however, to the fact, as deponent believes, that the complainant has not yet discovered a practical process whereby it can make marketable zigzag records, and acknowledging the great superiority of the records manufactured and sold by deponent's company, the complainant has in every conceivable way attempted to discover the processes used in the manufacture of the records of deponent's company.

Deponent makes this affidavit, and states the above facts in order to impress upon the Court his (deponent's) opinion that the efforts now being made by complainant to elicit from Mr. Cheney in-

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Sworn to  
18th day



formation as to his method of making records, and 319  
 also the complainant's efforts to examine and in-  
 spect the processes and apparatus used by Mr.  
 Cheney, are not for the purpose, as complainant  
 well knows, of obtaining proof of alleged infringe-  
 ment, but for the purpose of placing complainant in  
 a position where it can obtain information as to a  
 process, and thereby manufacturing records superior  
 to the records now manufactured by it, which would  
 compete in the market with the records now manu-  
 factured by deponent's said company, and thus en-  
 able it (the complainant) to continue to violate its  
 license agreement with The Universal Talking Ma-  
 chine Company, with a financial profit to it, which  
 so far it has been unable, as deponent is informed, 320  
 to realize.

FRANK A. CRANDALL.

Sworn to before me, this }  
 18th day of July, 1902. }

LESLIE R. PALMER,  
 Notary Public,  
 New York County.



322 CIRCUIT COURT OF THE UNITED STATES  
FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,

AGAINST

THE UNIVERSAL TALKING MA-  
CHINE MANUFACTURING COM-  
PANY,

323 Defendant.

On Claims 7, 10,  
&c.

County of New York, ss.:

324 GEORGE K. CHENEY, being duly sworn, deposes and says: That he has been examined at length by the counsel for the complainant, and has been questioned at length as to whether or not the processes and apparatus used by deponent, in connection with the manufacture of disc records, are similar to the processes and apparatus which the complainant alleges are defined in the claims of the patents in question. As to all of such questions he has answered that the processes are dissimilar. Deponent, however, has been asked a number of questions by the complainant's counsel, which questions tend to go further than to elicit from deponent, as an expert in these processes, opinions as to similarity or dissimilarity, and which questions could only be asked for the purpose of eliciting from deponent information as to other processes, which could not be included in the claims of the patents in question, and which processes, if revealed, would place the complainant and the complainant's counsel in the position of having information as to processes and apparatus for manufactur-

ing (dissimilar by the thereto, vealed, that co superior it, unde These pr informat ponent. revealed, nent's st and, if re tion of h industry, were the spectable having th him, in f and, in a which he that depo of this ch prove or c

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ing disc records which are not only 326  
 dissimilar to those complainant alleges to be covered  
 by the patents in question, but also greatly superior  
 thereto, and which, as a natural inference, if re-  
 vealed, would be used by the complainant, in order  
 that complainant might manufacture better and  
 superior disc records to those now manufactured by  
 it, under the claims of the patents in question.  
 These processes, as to which complainant seeks such  
 information, are secret processes, known only to de-  
 ponent. They are not patented, and therefore, if  
 revealed, could be used by any one. They are depo-  
 nent's stock in trade, and his means of livelihood,  
 and, if revealed, would place deponent in the posi-  
 tion of having, after many years of great toil and 326  
 industry, arrived at a point where these processes  
 were the means of giving him a business and re-  
 spectable livelihood, and then, at that very point,  
 having this result of his efforts taken away from  
 him, in favor of a competitor and possibly others,  
 and, in any event, depriving him of the result for  
 which he has so long toiled. All of the questions  
 that deponent has refused to answer are questions  
 of this character, and not of such a character as to  
 prove or disprove an alleged infringement.

GEORGE K. CHENEY.

Sworn to before me this 18th }  
 day of July, 1902. }

LESLIE R. PALMER,

Notary Public,

N. Y. County.

327

(Endorsed)—U. S. Circuit Court, Southern District  
 of N. Y.—American Graphophone Company vs.  
 Universal Talking Machine Manufacturing Com-  
 pany.—Affidavits in Opposition to Motion.—H.  
 A. West, Solicitor for Defendant, No. 68 Wil-  
 liam St., New York.—U. S. Circuit Court,  
 Southern District of New York.—Filed Sep. 5,  
 1902.—John A. Shields, Clerk.



328

UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

VS.

UNIVERSAL TALKING MACHINE  
COMPANY.

329

LACOMBE, Circuit Judge:

The evidence as to infringement is not sufficiently  
clear to warrant preliminary injunction.

June 26, 1902.

(Endorsed)—U. S. Circuit Court, Southern District  
of New York.—Filed Jun. 24, 1902.—John A.  
Shields, Clerk.

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IN THE CIRCUIT COURT OF THE UNITED STATES 331

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE  
COMPANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.

Order.

332

This cause coming on to be heard on June 19, 1902, upon complainant's motion for preliminary injunction on claims 7, 10, 17 and 18 of the Bell and Painter patent No. 341,214 in suit, and upon the bill of complaint and affidavits and exhibits filed by each party, and after hearing C. A. L. Massie, Esq., for the motion and Howard W. Hayes, Esq., in opposition, and the Court being advised in the premises, and it appearing to the Court that the evidence as to infringement is not sufficiently clear to warrant granting an injunction *pendente lite*, it is now

Ordered, that said motion be and the same hereby is refused because of the inadequacy of complainant's proof of infringement without prejudice to the right of complainant to renew said motion.

333

Dated June 26, 1902.

E. H. LACOMBE,  
U. S. C. J.

(Endorsed)—U. S. Circuit Court, S. D. N. Y.—American Graphophone Co. v. Universal Talking Machine Manufacturing Company.—Order.—U. S. Circuit Court, Southern District of New York.—Filed Jun. 26, 1902.—John A. Shields, Clerk.



334 IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Sound-Record.  
Docket No. 8055:

335

Notice of taking testimony.

Please take notice that under Equity Rule 67, as amended and the practice of this Court, we shall proceed to take testimony on behalf of complainant herein before John A. Shields, Esq., a standing Examiner of this Court, at the office of Philip Mauro, Esq., No. 277 Broadway, in the Borough of Manhattan and City of New York, beginning at eleven o'clock in the forenoon of Monday, June 30, 1902; the taking of testimony will be adjourned from day to day as may be necessary, without further notice.

336 You are invited to be present and cross-examine the witnesses.

Respectfully yours,

C. A. L. MASSIE,  
Of Counsel.

To H. ALBERTUS WEST, Esq.,  
GEO. CARLETON COMSTOCK, Esq.,  
Of Counsel for Defendant,  
68 William Street,  
New York City.

Copy of the foregoing notice of taking testimony received this 27th day of June, 1902.

PETER B. OLNEY,  
Per Messrs. WEST & COMSTOCK,  
Of Counsel.

IN THE

FOR THE

AMERICAN

UNIVERSAL  
MANUFACTURING

PROOFS FOR

pursuant  
the 67th  
as amended  
Esq., on  
Court, at  
277 Bro  
City of  
A. M.

Present-

Mr. Massie  
Albertus West  
upon Mr. West  
Wednesday,  
postponed until  
who had been  
been notified  
until next Wednesday  
Adjourned



IN THE CIRCUIT COURT OF THE UNITED  
STATES

337

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
Docket No. 8055.  
Bell & Tainter  
Patent, # 341,214,  
Sound-Records.

338

PROOFS FOR FINAL HEARING on behalf of complainant,  
pursuant to notice and under and pursuant to  
the 67th Rule of Equity of the Supreme Court  
as amended, taken before me, John A. Shields,  
Esq., one of the Standing Examiners of this  
Court, at the office of Philip Mauro, Esq., No.  
277 Broadway, in the Borough of Manhattan,  
City of New York, on June 30, 1902, at eleven  
A. M.

Present—C. A. L. MASSIE, Esq., representing  
PHILIP MAURO, Esq., on behalf of  
complainant.

339

Mr. Massie states that at the urgent request of H.  
Albertus West, Esq., of counsel for defendant, and  
upon Mr. West's undertaking to attend on next  
Wednesday, July 2, 1902, the examination will be  
postponed until that date. Mr. George K. Cheney,  
who had been subpoenaed to attend this morning has  
been notified by telephone that he need not attend  
until next Wednesday morning at 11 A. M.

Adjourned to 11 A. M., July 2, 1902, same place.



340

JULY 2, 1902.

Met pursuant to adjournment.

Present—C. A. L. MASSIE, Esq., representing  
PHILIP MAURO, Esq., of counsel for  
complainant.

H. ALBERTUS WEST, Esq., of counsel  
for defendant.

And thereupon GEORGE K. CHENEY, a witness produced on behalf of the complainant, being first duly sworn, in answer to interrogatories propounded by Mr. Massie, deposes as follows:

341

Q. 1. Please state your name, age, residence, and occupation?

A. George K. Cheney; 2367 Seventh avenue, New York city; occupation, machinist; age, 31.

Q. 2. Are you the George K. Cheney who has already made an affidavit in this case on behalf of defendant?

A. Yes.

Q. 3. In your affidavit you have stated that all the records put out by defendant are impressed into a composition of shellac or the like, from electroplate matrixes. Is that correct?

A. It is.

342 Q. 4. These electroplate matrixes are all made under your personal supervision, are they not?

A. Yes.

Q. 5. They are all produced from original sound-records in a soft composition, composed mainly of tallow and other ingredients?

A. Yes.

Q. 6. How long have you been engaged in making such records for defendant?

A. A year and a half.

Q. 7. You, I understand, are the person who knows all the details of the work?

A. Yes.

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Q. 8. During this period named by you, the last year and a half, have you followed always the same system or method in producing the sound-records? 343

Objected to as immaterial.

A. Do you mean any records which I have made or those put on the market?

By Mr. Massie: For the present you may confine your answer to records that have been put on the market.

A. Yes.

Q. 9. Is it also your testimony that during this period of the last year and a half the tablet upon which the original records are made has always been of practically the same composition? I refer now to original records from which you have produced commercial articles put on the market. 344

A. Practically the same.

Q. 10. I understand that the composition of this tablet, this material for receiving the original sound-record, is an invention of your own, and that, so far as possible, we do not desire to disclose such secret matters on this record? Is that correct?

A. Yes.

Q. 11. This material, which we may designate for the present as your tallow composition, is prepared in plates or tablets for recording, is it not?

A. Yes.

Q. About what thickness is this tablet when ready for receiving a record? 345

Objected to as immaterial, and the witness is instructed that he may decline to answer if any question of thickness is involved in the secret of making the tablets.

A. I never measured one; I could not tell you.

Q. 13. Can you say whether or not this tallow composition tablet which you have used for recording is more than one-twentieth of an inch thick?

Same objection.



346 A. I do not care to state whether it is or not.

Q. 14. I hand you a copy of United States Letters Patent, No. 341,214, to Bell & Tainter—the same being the patent here in suit—and ask do you regard yourself as the inventor of any matters there disclosed?

Question objected to as wholly immaterial and incompetent and irrelevant and improper.

A. No; I never invented a tablet one-twentieth of an inch thick.

Q. 15. Then will you please tell us whether the tablet you employ is more than one-twentieth of an inch in thickness?

347 Same objection and same instructions.

A. I do not know, as I never have measured one.

Q. 16. Is that the best answer you can give? Do you desire the Court to understand that you do not know whether the tablet in question is more than one twentieth of an inch in thickness?

Same objection and same instructions.

A. No.

Q. 17. When this tablet is to receive a sound-record, it is placed upon a horizontal turn-table, is it not?

A. It is.

348 Q. 18. Is not the surface of the tablet smoothed off before the record is placed upon it?

A. It is flattened.

Q. 19. How?

A. I do not care to state how it is done.

Q. 20. Upon what ground?

A. That I would not care to have our competitors know.

By Mr. Massie: The attention of the Court is respectfully called to the fact that in this examination complainant has no desire to ascertain the legitimate trade secrets of defendant or of the witness, but complainant is compelled to subpoena defendant's

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expert in order to obtain by the assistance of a court 349  
of equity the information possessed by this witness  
alone, and which is necessary in order to protect  
complainant's rights in the premises.

Q. 21. Do you consider that you invented the step  
of smoothing off the upper surface of a tablet of soft  
material in case said surface is rough or uneven?  
Do you regard that step as an invention of your  
own?

Objected to as immaterial, following as it  
does the last preceding question.

A. For this particular work, yes.

Q. 22. For that reason, then, you decline to state  
how you smooth the upper surface of the tablet? 350

A. Yes.

Q. 23. What is the next step after this upper sur-  
face of the tablet has been rendered smooth?

A. I would not care to state that either as it is  
one of the secrets of the way the thing is prepared.

Q. 24. Do I understand from your foregoing an-  
swer that after the surface of the tablet has been  
smoothed, but before the record is made thereon,  
some other step or steps are taken?

A. Yes.

By Mr. Massie: As at present advised, the witness  
is informed that as to such intermediate step we  
are not now concerned.

Q. 25. In making the record, what sort of record-  
ing apparatus is employed? 351

A. It is of my own construction and I do not  
think it ought to be told to any one. The machine  
part is not, the recorders are.

Q. 26. May we take it as a correct statement, that  
the machine part is practically of the well known  
gramophone or zonophone type?

A. Why, no; I don't suppose you could consider it  
the same.

Q. 27. Please describe briefly this machine part,



352 which you have said is not an invention of your own.

Objected to as incompetent and immaterial.

By Mr. Massie: Doubtless counsel for defense would like to object to the examination of this witness on any point as incompetent and immaterial and improper. Of course we cannot consent to this view, and are compelled to ask a number of apparently irrelevant questions in order to elicit the desired information with a view to avoid having to obtain from the Court an order to compel the witness to answer.

353 A. It is very similar to the ordinary lathe except for the turn table being horizontal instead of vertical.

Q. 28. Does the machine have an arm which is fed across the surface of the turn-table, and which carries your recorder?

Objected to as incompetent and immaterial; the construction of the machine or of any machine is not at issue in this case as I understand it, and the witness is instructed that he may decline to answer if he sees fit to do so.

354 By Mr. Massie: The witness is advised that it is not the province either of defendant's counsel or of the witness to undertake to say that a question is immaterial and not be answered; that is a matter for the Court.

A. I cannot answer it any way; I do not know what you consider an arm.

Q. 29. Do you know whether or not this machine part, which you have told us is not an invention of your own, has any means for carrying your recorder across the surface of your tallow tablet; and if you do know, please describe it briefly?

Same objection.

A. Yes; the recorder is held in a casting.

Q. 30. And ment, a feed casting to the tablet?

Same machine not involved present

A. Yes,

Q. 31. Did your affidavit recorders?

A. No.

Q. 32. Does

A. Yes, sir

Q. 33. Does one end to the end some sort

A. Yes, it

Q. 34. And the recorder which is fed composition correct?

A. Yes.

Q. 35. And the tallow coating or groove the

A. Yes.

Q. 36. And is uttered as the vibration produce irregularities correct?

A. Yes.

Q. 37. Where the stylus is

A. Yes, I

Q. 38. Where



Q. 30. And the machine contains some arrangement, a feed screw or the like, for causing this casting to travel along and carry the recorder across the tablet? 355

Same objection. The construction of the machine is made an issue in another suit, and is not involved in any of the claims in issue in the present suit.

A. Yes,

Q. 31. Did you not produce in connection with your affidavit already given in this case one of your recorders?

A. No.

Q. 32. Does your recorder contain a diaphragm? 356

A. Yes, sir.

Q. 33. Does it contain a stylus bar connected at one end to the diaphragm, and carrying at its other end some sort of recording tool or stylus?

A. Yes, it has a recording tool.

Q. 34. And this recorder, containing the diaphragm and the recording tool, is placed on the casting which is fed across the machine, while your tallow composition tablet is rotated on the machine; is that correct?

A. Yes.

Q. 35. And the end of this stylus is imbedded in the tallow composition, and produces a track or line or groove therein?

A. Yes. 357

Q. 36. And, if at the same time a speech or music is uttered against the diaphragm of your recorder, the vibrations of the diaphragm cause the stylus to produce irregularities in the groove, which irregularities correspond to the original sound. Is that correct?

A. Yes.

Q. 37. Would you mind stating of what material the stylus is composed?

A. Yes, I would mind, because it is a secret.

Q. 38. What is the depth, if you know, to which



358 the stylus is imbedded into the tallow composition tablet?

A. That I don't know.

Q. 39. Is it not somewhere about (2) two one-thousandths (2/1000) of an inch (.002)?

A. I should think about that.

Q. 40. The width of the groove is about what?

A. It is hard to tell; I should say about two and a half one-thousandths (2 1/2/1000).

Q. 41. How does the width of the groove in your original tallow-composition compare with the width of the corresponding ridge in the electroplated matrix; is it not about the same?

A. Yes.

359 Q. 42. And about the same as the width of the groove in the commercial record impressed into the shellac composition?

A. About the same.

Q. 43. Then it is true, is it not, that the width of your stylus is about two and a half one-thousandths of an inch?

A. Yes, about that.

Q. 44. Would you tell us whether or not your tallow-composition is softer or harder than tallow; pure tallow I mean?

A. Softer.

Q. 45. What sort of tallow do you employ?

360 Objected to as incompetent and immaterial.

A. The best I can get.

Q. 46. Just ordinary tallow, the best you can get?

A. I send for the best tallow; it isn't ordinary tallow.

Q. 47. Did you ever hear of what is called stearine or stearic acid?

A. Yes.

Q. 48. Is that the form of tallow you employ?

A. I have used a little stearic acid when I could not get the other.

Q. 49. I would like for you to tell the Court just what happens while the record is being made, while

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A. Yes.

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not, by kee

A. Yes.

Q. 56. So  
dealing with  
run?

A. Not w



the tallow-composition tablet is rotating beneath 361  
your recording-stylus?

A. After the recording tool is imbedded in the material to the proper depth, then it turns around as the material is revolved under the recording tool and forms a groove.

Q. 50. The number of grooves per inch, measured radially across your tablet, would depend upon the construction, pitch of feed-screw, &c., of your machine, would it not?

A. It depends on the gearing.

Q. 51. Do you know, and can you tell us, about how many grooves per inch are contained in the records made by yourself?

A. About 104 to the inch.

362

Q. 52. The wall between the grooves is about what thickness?

A. In the neighborhood of two and a half thousandths ( $2\frac{1}{2}$ -1000).

Q. 53. As each revolution of your disc tablet produces a groove with its adjacent wall, in a radial distance of one inch we would have about one hundred and four (104) grooves and as many walls; and these grooves and walls are of approximately the same width; so that the width of each groove and of each wall would average somewhere about five one thousandths ( $\frac{5}{1000}$ ) of an inch, would it not?

A. I think the wall is wider than the groove.

363

Q. 54. In dealing with a composition softer than ordinary pure tallow, does the material have a tendency to run, so as to destroy the record already made?

A. Yes.

Q. 55. You prevent this to a great extent, do you not, by keeping your material cool?

A. Yes.

Q. 56. So that we may say that while you are dealing with it and it is being kept cool, it does not run?

A. Not while it is in a flattened position.



364 Q. 57. What becomes of the material that had occupied the space where your grooves are gouged out?

A. It is displaced and pushed to one side.

Q. 58. How do you get rid of it? Do you have an apparatus or contrivance of some sort for blowing it away?

A. There is nothing removed to blow away.

Q. 59. Where is it lodged?

A. I don't know. There is nothing comes off the tablet.

Q. 60. Is it crowded into the wall between the grooves?

A. Yes.

365 Q. 61. Is the height of these walls raised above the average surface height of the tablet?

A. I think it is a very little.

Q. 62. If this be correct, would the height of the walls in the ultimate commercial record be correspondingly elevated above the average height of the remainder of the record surface?

A. Yes; on most of them you will find them, on some you won't, it depends on the recording tool.

Q. 63. Referring now more particularly to those records just mentioned by you, in which the height of the walls between the grooves is not increased, "depending upon the recording tool," what has become of the material which was removed in gouging out the groove?

366 A. It all stays in the plate.

Q. 64. Did you not just now start to explain off the record by means of a sketch?

A. Yes.

Q. 65. Will you kindly make a sketch on the yellow paper now handed you to explain your meaning?

By Mr. West: I object to any sketches going in.

A. I do not care to show sketch of tool used.

By Mr. Massie: The objections of counsel for defendant are excepted to as a manifest effort to sup-

press the fact the witness given, by mention.

Q. 66. Do you are unable has been ren yet is not pile

Object  
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Q. 67. How

A. I don't

Q. 68. How  
cording tool

A. I don't

Q. 69. Are  
recording tool  
half ago?

A. Very sin

Q. 70. How  
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A. If you  
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press the facts in the case, and tending to prevent 367  
the witness from explaining the answers already  
given, by means of further elucidating his descrip-  
tion.

Q. 66. Do you wish the Court to understand that  
you are unable to explain how it is that the material  
has been removed or displaced from the groove and  
yet is not piled up in the wall?

Objected to as immaterial, incompetent.  
Question withdrawn.

Q. 67. How do you sharpen your recording tool?

A. I don't sharpen them at all.

Q. 68. How long have you employed the same re- 368  
cording tool without change?

A. I don't know.

Q. 69. Are you at the present time using the same  
recording tool which you used about a year and a  
half ago?

A. Very similar.

Q. 70. How many different individual recording  
tools do you suppose you have employed within the  
last year and a half? I am not inquiring as to the  
different number of recording machines you have  
used, but wish to get an idea as to the durability  
under continued use of any one stylus?

A. If you get one that is right you never have to  
change it.

369

Adjourned to two o'clock.

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AFTER RECESS.

Complainant's counsel. in order to save time,  
requests counsel for defendant to stipulate com-  
plainant's ownership of the Bell & Tainter Pat-  
ent No. 341,214 in suit. This question has been  
frequently adjudicated, and complainant's title  
is a matter of public notoriety.



370 Counsel for defendant declines to make the stipulation requested at this time.

In view of the last response, complainant's counsel reserves for the present proof of title, &c.

Q. 71. Where is your laboratory and record making department?

A. 152 East Twenty-third street.

Q. 72. Are you in charge there?

A. Yes.

Q. 73. How long have you been at that location?

A. Two years.

Q. 74. In charge all that time?

A. No.

371 Q. 75. How long have you been in charge?

A. Since a year ago last May.

Q. 76. You have testified that you have been making records for about a year and a half. During the first half year or less, some one else was in charge over you. Is that correct?

A. There wasn't anybody in the laboratory, but I never was given any authority to believe I had charge until April, 1901.

Q. 77. During all the period of the last year and a half, you were the person who either personally made all the original records or supervised their making by employees under your direction?

A. Yes.

372 Q. 78. And as I understand the testimony already given, all the original records during this period to the present time were made by the same method or system you have described, and employing substantially the same tallow composition material for the original recording tablet?

A. Practically the same.

Q. 79. The original sound records are electroplates by employees under your personal supervision; will you give us the names of these men?

A. Only one, William Flannery, who is still with me.

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Q. 86.  
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Q. 88.  
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Q. 89.  
A. I th



80 Q. Have any other persons been present during the process of placing the original records in the electroplating bath, and while the electroplating was going on? 373

A. Other employees have passed through the electrotyping room.

81 Q. They could see the record tablets in the baths, could they not?

A. Only the top of them; they could not see the records.

Q. 82. Are the records laid on the bottom of the tank?

A. I decline to answer that; I don't think it is right to ask how we make our records.

Q. 83. Do you wish to deny that the records are suspended in a vertical position in the bath? 374

A. They are suspended, but I won't say how.

Q. 84. You have undertaken to say what you think should not be answered by you on this examination; can you give an idea as to what line you would draw in answering or declining to answer a question?

Objected to as incompetent and immaterial.  
The question does not call for evidence.

By Mr. Massie: I quite agree with counsel that it is incompetent for the witness to assume to say what should not be answered by him, and the matter will be left for determination by the Court. 375

Q. 85. Who besides yourself has seen the record tablet which you employ?

A. Mr. J. A. McNab and, of course, the electrotypers see them; Mr. West.

Q. 86. Any one else?

A. Yes.

Q. 87. Who?

A. I decline to answer.

Q. 88. Question repeated.

A. Same answer.

Q. 89. Has Mr. Louis P. Valiquet ever seen them?

A. I think he has, but I won't swear to it.



376 Q. 90. On what grounds do you decline to give the names of any other persons who have seen your tallow composition recording tablets?

A. Because I think that's enough names.

By Mr. Massie: Complainant's counsel appeals to the Court for protection against this course on the part of the witness. The witness has been sworn to tell, not only the truth, but the whole truth. Another opportunity is now given him and the question is repeated.

Q. 91. Please tell us the name of the persons who have seen your tallow composition recording material.

377 Question objected to as incompetent and immaterial and irrelevant.

By Mr. Massie: Will counsel kindly explain upon what ground he regards this as incompetent? This witness should know, if any one does.

The question has nothing to do with the issues of this case as set forth in the pleading.

A. I could not tell you how many people have seen them.

Q. 92. Please give us the names of some other persons who have?

Same objection.

378 A. H. J. Hagen.

Q. 93. Has any person other than yourself ever seen the operation of making the original sound-records?

A. Yes.

Q. 94. Name them?

A. H. J. Hagen and J. A. McNab.

Q. 95. Any one else?

A. I don't know whether Mr. West did or not.

Q. 96. Any one else besides Mr. West and the two others just named?

A. No, I do not think there has—not close enough to see the operation of the machine.

Q. 97. How

A. None o

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A. Yes.

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Q. 97. How about the performers, musicians, &c.? 379

A. None of them have ever seen a record made.

Q. Your recording-machine containing the tablet is in one room, and you have a horn protruding through a hole in a partition, or through a curtain, to conceal the machine and its operations. Is that correct?

A. Yes.

Q. 99. Do you test every record, as a general rule, after it is made and before you proceed to have it electroplated?

A. I have never tested a record that has been electrotyped.

Q. 100. Do you mean that the only testing of original records was in the line of experimentation; 380 and that in such cases the original had not been electroplated or further used?

Objected to as incompetent, immaterial and irrelevant.

A. Yes, I have tried to test them.

Q. 101. In our motion for preliminary injunction in this case, which was denied, we produced in evidence two blank disc records asserted by us to have been put out by this defendant. Did you see those records?

A. I don't know whether I did or not.

Q. 102. I am sorry I have not yet withdrawn these two exhibits for use during this examination. These 381 records contained in the central portion of their upper surface certain markings, concentric markings or tracings. Have you any idea what produced these markings?

Objected to as incompetent. There is no evidence to show that the witness has any knowledge of these particular records, or that he has ever seen them, or that they are not counterfeit.

By Mr. Massie: My question was to ascertain whether or not the witness had any opinion on the subject, and it seems to me defendant's counsel has



382 undertaken to answer the question although not himself on the stand. The question is repeated.

By Mr. West: The question is further objected to in view of the examining's counsel's last statement as calling for a mere opinion of the witness as to a record which the witness has never seen. The question does not call for evidence.

A. No, not having seen the records cannot say anything about them.

Q. 103. Who besides yourself has ever seen your recording stylus.

A. I don't think any one has to examine it closely.

383 Q. 104. Mr. Hagen, Mr. McNab, possibly Mr. West, have seen this stylus, but not to examine it closely; is that it?

A. Yes.

By Mr. West: I never saw it in my life.

Q. 105. Has Mr. Valiquet ever seen it so far as you know?

A. No, not the one that I am using.

Q. 106. Is it your testimony that no one except the two persons named, Hagen and McNab, have ever seen any of the recording tools or stylus employed by you during the last year and a half?

A. Not that I know of.

384 Q. 107. How long a time, approximately, does it take to make the original record?

Objected to as immaterial.

A. As long as it takes the singer to sing it.

Q. 108. How long a time does it take to smooth the upper surface of your recording tablet before making the record thereon; about as long, would you say, as it requires to make the record?

Same objection.

A. I don't know how long it would take.

Q. 109. As much as half an hour?

A. It n  
Q. 110.  
smoothing  
A. No.  
Q. 111.  
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A. It might be more or less.

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Q. 110. Would you say that the average time of smoothing the surface is about half an hour?

A. No.

Q. 111. Would it be greater or less?

A. It might be either, more or less.

Q. 112. But the average time would not be about half an hour?

A. No.

Q. 113. What factors would cause the time required for rendering the surface smooth to be greater than the average or less than the average, as the case may be?

A. A good many things would be. I won't answer; I don't think it is right.

386

Q. 114. Who does this smoothing?

A. I do sometimes.

Q. 115. Who else?

A. I decline to answer.

Q. 116. Why?

A. Because I don't think it is necessary.

Q. 117. I would respectfully remind you that a witness is not to judge of what questions it is not necessary for him to answer, and I therefore repeat the question.

Question objected to as wholly immaterial and irrelevant. It is not the province of this witness to give to a competitor the names of skilled employees, particularly is this true in this art, where it is common for one competitor to employ away from another employees that have been trained to their duties. Furthermore is it a fact that complainant or its representatives have made repeated efforts to learn and ascertain the secret methods employed by the defendants in making records.

387

By Mr. Massie: This last statement volunteered by defendant's counsel must of course rest solely upon the statement of the counsel making it. Does defendant's counsel pretend that if a defendant were



388 employing the identical process of a complainant's patent, its employees could decline to answer on the ground that their acts constituted their valuable business secrets.

By Mr. Massie: Defendant's counsel declining to answer this question, the examination of the witness will now proceed.

Q. 118. It is true, is it not, that in making your original sound-record, your stylus ploughs a track or groove along the surface of the tablet?

A. No, I don't consider it so.

Q. 119. Please state as clearly as you may, what you consider is the operation?

389 A. The same as if you were to draw a needle along the top of butter, the needle lying at an angle.

Q. 120. Do you mean, if the needle is lying at an angle back towards yourself, that the butter would be passed in the same direction, or in the opposite direction?

A. It wouldn't pass anywheres.

Q. 121. It is your idea, is it, that if a needle should be drawn across the top of a pat of butter, at an angle, that it would not remove any particles of the butter?

A. Yes.

390 Q. 122. Is it your idea, if a needle were drawn across the top of a cake of tallow, at an angle, that none of the tallow would be removed?

A. Not if the tallow is soft enough.

Q. 123. If you should draw your finger-nail across a pat of butter, would any of the butter be removed?

This line of examination is objected to as incompetent and immaterial and irrelevant.

By Mr. Massie: Complainant contends that the defendant is infringing, and the reply as gathered from the answering affidavits and from this witness' testimony so far given, indicates that to say the least their methods and material are closely

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akin to those of our patent; and when the witness proceeds to assert a difference, it is not only competent but even compulsory on us to ascertain the facts upon which he bases his conclusions as to the assumed difference. The witness has stated that the operation of his recording-tool is "the same as if he were to draw a needle along the top of butter, the needle lying at an angle." Q. 123 is now repeated. 391

By Mr. West: The objection is repeated, and the force of the objection is clearly indicated to be a valid one by the statement made by the examining counsel. The opinion of the Court is quite as good in determining the matter asked about as the opinion of the witness. The opinion of the witness upon the question is not evidence, but he is asked to assume the functions of the Judge. 392

A. It would depend upon how you held your finger nail.

Q. 124. Did you ever draw your finger-nail across a pat of butter?

A. Not that I remember.

Q. 125. Did you ever draw a needle along the top of butter, as indicated in your previous answer to Q. 119?

A. I think I have.

Q. 126. Is it your testimony that no butter at all adhered to the needle?

A. I don't remember. 393

Q. 127. I wish to have it appear formally on the record that we have made a request, and I therefore ask you if you have any objection to producing at the next session, and in the presence only of yourself, the typeritist here present and of the two counsel here present, one of your recording-tablets, or at least a portion of the material?

A. Yes.

Q. 128. For the same purpose, I would ask have you any objection to counsel for complainant being present in your laboratory while a record is being made by you?



394 A. Yes.

Q. 129. During the act or process of making your original record, do any small portions of the material adhere to the stylus?

A. No. Not when it is working right.

Q. 130. Then, if you have produced a good record, a satisfactory record, that means that none of the material has adhered to the stylus; whereas if the material has adhered, the result will be a poor and unsatisfactory record.

A. Yes.

Q. 131. Is it a fact that this sticking of the material to the stylus, when it occurs, is due to the material being too soft?

395 A. No, not necessarily.

Q. 132. That would be one cause?

A. Well, if the recording tool is not right it might a very little.

Q. 133. Do you mean, if the recording tool is not placed at just the right angle, or if it is imbedded too deeply?

A. Yes.

Q. 134. But it is your testimony, that if the recording tool is at the right angle, and is not imbedded too deep, and if the material be not too soft, then none of the material will adhere to the tool?

A. No, there won't any.

396 Q. 135. Did you ever examine one of your records under a magnifying glass?

A. Yes.

Q. 136. The record-groove is of practically uniform depth, is it not?

A. Yes.

Q. 137. It consists of a succession of sweeping sinuous curves, does it not?

A. If the record is a zigzag track.

Q. 138. Under the microscope, are the side walls of the record-groove perfectly smooth, or do they themselves contain little notches or indentions or cuts?

A. They are supposed to be smooth.



Q. 139. For the purpose of explaining my meaning, I produce a crude sketch, upon which there are two heavy lines in ink, intended to be practically parallel; and at one end I have marked in pencil some smaller broken lines. I would ask you, if the ink lines or the pencil lines would more closely approximate in a general way the appearance of your record-groove under the microscope, or greatly exaggerated? 397

A. That would depend upon the diaphragm and the instruments that were playing before the machine, each and every instrument makes a different vibration.

Q. 140. With a good and sensitive diaphragm, and with a musical instrument of a higher key playing before the recording apparatus, would the record-groove produced present somewhat the appearance indicated by the pencil lines in this sketch; that is, would the groove consist of the longer curves each containing several of the shorter indentations? 398

A. With whistling or piccolo you always get those. And the piano would represent the larger.

The sketch is marked for identification "Sketch produced during Mr. Cheney's Examination," with the date.

Q. 141. The presence of these smaller bends or elbows in the longer sweeps, indicates a very sharp or angular side to the recording-stylus, does it not? 399

Objected to as leading and not calling for the best answer.

A. No, not necessarily.

Q. 142. As a matter of fact is your stylus cylindrical, is it a circle in cross-section?

A. I decline to answer because I do not use a thing that is patented, and do not propose to tell any one what I am doing.

Q. 143. Have you ever seen the ordinary graphophone or phonograph recorder, with its cylindrical stylus?



- 400 A. I have seen them at a distance, but never examined one of them. I know what they are like.
- Q. 144. A cylindrical stylus for recording is not your invention, is it?
- A. No, I never have used one of them, nothing like they use on a graphophone or phonograph.
- Q. 145. Then your recorder is not a cylinder?
- A. No.
- Q. 146. Is your recorder in cross-section a semi-circle?
- A. I decline to answer that same as before.
- Q. 147. I call your attention to the recorder shown in Figs. 5 and 6 of Bell & Tainter patent in suit, which I may add is described on page 3 thereof,
- 401 lines 67-70. Is that recorder an invention of your own?
- A. No.
- Q. 148. Will you tell us, then, do you use a stylus which is semi-circular in cross-section?
- A. I decline to answer that, same as before.
- Q. 149. Such stylus you have admitted is not an invention of your own, and I therefore repeat the question?
- A. Answer same as before.
- Q. 150. You have seen, have you not, the conical points employed in the disc reproducing machines, gramophones, zonophones, and the like?
- A. Yes, they have a needle point.
- 402 Q. 151. Is that tapered form of stylus an invention of your own?
- A. Yes, the one that I use; so far as I know.
- Q. 152. The mere feature of having a taper present is not your invention, is it?
- A. No, the taper is very old.
- Q. 153. In answering Q. 151, did you understand that I asked if the tapered or conical stylus was your own invention?
- A. Yes.
- Q. 154. I did not intend in my question to ask you whether you claimed as your invention the taking of an ordinary tapered reproducing needle and

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Q. 160



employing it as a recorder; but what I asked is: 403  
Do you regard as your invention a conical or tapered  
stylus, for whichever purpose employed?

A. No.

Q. 155. I will ask you, then, if your recording-  
stylus, the one you employ according to your sys-  
tem which we have been discussing at length, the  
one which you use in making your records on the  
tallow composition—is that stylus a conical or  
tapered one?

A. I decline to answer; same reason as before.

Q. 156. On the ground that it is an invention of  
your own, or on the ground that you think it would  
disclose your own private business?

A. Both. It is my own invention, and don't care 404  
to tell some one else how the tool is made.

Adjourned to Tuesday, July 8, 1902, 11 A. M.

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NEW YORK, July 8, 1902.

Met pursuant to adjournment.

Present as before.

Examination of GEORGE K. CHENEY continued.

Q. 157. The cake or plate upon which you make 405  
your original sound-record is a disc, is it not?

A. Yes.

Q. 158. Do you prepare this by melting the ingre-  
dients and pouring them into a mould to cool?

A. I do not care to answer that question; it is  
part of the business secrets.

Q. 159. What is the composition of this recording-  
disc employed by you, of what materials is it com-  
posed?

A. That I don't propose to tell to any one.

Q. 160. It has tallow in it, has it not?



406 A. Yes.

Q. 161. Is this tallow mutton tallow or beef tallow?

A. I don't know.

Q. 162. Where do you obtain it?

A. You can get it any place. Any drug store has it.

Q. 163. What proportion of your recording discs is tallow, speaking generally.

A. That I don't care to state.

Q. 164. Is it as much as one-half?

A. I don't care to state.

Q. 165. Your recording composition can be easily melted, can it not?

407 A. Yes.

Q. 166. This material, this composition, could be melted and poured into a tin dish or the like to form a cake or disc, could it not?

A. Yes.

Q. 167. Do you do this part of the work yourself?

A. Yes.

Q. 168. The ordinary method of forming a cake or disc from such tallow like composition is to melt it and pour it into a suitable mould, is it not?

A. It can be done that way.

Q. 169. Is that the way you make your discs?

A. I do not care to state how I make mine.

408 Q. 170. After your disc is produced you have to smooth or flatten its upper surface for the purpose of enabling you to make a sound record thereon, as you have already testified. Do you place the disc upon the turn-table of your machine in order to smooth its upper surface?

A. I don't care to state anything about that at all.

Q. 171. Do you wish to be understood as denying the statement that you place the recording material plate or disc upon a turn-table in order to smooth its upper surface?

Question objected to, as it is only another form of the last question which the witness has already declined to answer.



A. I decline to answer it.

409

Q. 172. Do you smooth the top of the disc immediately before you proceed to make a record thereon; or may it be smoothed and put aside, and then taken some time later without any further smoothing and used for recording?

A. I decline to answer.

Q. 173. On what ground do you decline to answer this and the other questions you have declined to answer?

A. Because it is connected with the secrets of my process which even the officers of the company know nothing about. And I claim this as my personal property.

Q. 174. Have you filed an application or applications for patent on this or any other portion or portions of your record making system? 410

A. Not of this system, no.

Q. 175. I understand from your answers that you have filed an application or applications for patent on some other system or parts of some other system for producing sound-records. Have you ever employed or carried out or in any manner made use of this other system in making sound-records?

A. Yes.

Q. 176. Where was this work done?

A. At home and at 874 Broadway, and 152 East Twenty-third.

Q. 177. What is 874 Broadway?

411

A. That is where I used to have my laboratory.

Q. 178. What is 152 East Twenty-third?

A. That is the building owned by Jordan & Moriarty, office and factory building.

Q. 179. What establishment in this building 152 East Twenty-third?

A. Laboratory of the Universal Talking Machine Company.

Q. 180. For whom was this work done, for yourself or for the defendant herein?

A. I suppose it was for them, but I never told them about it. I suppose they would have a claim for it.



412 Q. 181. Whom do you mean by "them" and "they" in your last answer?

A. The company I am employed by.

Q. 182. The Universal Talking Machine Manufacturing Company, defendant herein?

A. No, I am not employed by the Universal Talking Machine Manufacturing Company.

Complainant's counsel produces copy of answering affidavit served on him by Mr. West, solicitor of record for defendant, and calls the witness' attention to the first paragraph in the affidavit by George K. Cheney.

413 Q. 183. Are you the George K. Cheney who made this affidavit?

A. Yes.

Q. 184. What did you mean when, in an affidavit given by you in this case, entitled American Graphophone Company, Complainant, v. Universal Talking Machine Manufacturing Company, Defendant, when you said: "I am employed by the defendant, and have charge of its laboratory and record-making department at 152 East Twenty-third street, New York City, and have had charge of this department ever since May 4, 1901"? By whom were you employed at the date of this affidavit, to wit, June 18, 1902?

A. The Universal Talking Machine Company.

Q. 185. That concern is still in business, then?

414 A. I don't know, my contract is with the Universal Talking Machine Company, and have never had it changed to any other company.

Complainant's counsel states that complainant and its advisers had been informed, not only from outside sources, but I believe also by representatives of defendant, that the aforesaid Universal Talking Machine Company had gone out of business entirely. He now gives notice of a motion for leave to amend the bill of complaint herein by suitable amendment to bring in the said Universal Talking Machine Company as a party defendant.



The witness adds: I did not see the heading of the bill so as to know who the suit was against. 415

Q. 186. Did you write this affidavit yourself?

A. No.

Q. 187. It was prepared by some one else and submitted to you, and you then signed it?

A. I dictated the wording to a certain extent and signed it; yes.

Q. 188. In your answers just given replying to my questions about an affidavit given by yourself, did you understand that I was inquiring about an affidavit executed by you on the 18th day of June, 1902, before Leslie R. Palmer, of which a copy is now shown you?

A. Yes.

416

Q. 189. In your answers to my questions at the last session and again this morning, did you understand that I was inquiring about the Universal Talking Machine Company, or about the Universal Talking Machine Manufacturing Company; or did you have in mind any distinction between those concerns?

A. Universal Talking Machine Manufacturing Company.

Q. 190. In giving your answers heretofore, throughout this examination, you well knew the distinction between the two concerns, and did not have them in any way confused?

A. No, I don't think so.

417

By Mr. Massie: Before this examination is concluded, the witness will be given an opportunity to read over his deposition, in order that he may correct any answers in case he sees fit to do so.

Q. 191. Calling your attention now to Qs. 175, and following, and your answers thereto, I would ask you to describe this other system which you have employed in making sound-records.

Objected to as incompetent and irrelevant and immaterial.



418 A. As the patent is not issued, I do not care to say anything about it.

Q. 192. In this other system, is an electroplated matrix employed?

Same objection. The system is being patented, and it is improper to call upon the witness to describe the process either in whole or in part.

A. There is a matrix used, but I do not care to state of what material or how the matrix is made.

Q. 193. And this matrix is impressed into a shellac composition of fibrous material, or the like, to produce the final record?

419 Same objection. No proper foundation laid for the question.

A. Yes.

Q. 194. And this matrix is obtained from an original sound record?

A. Yes.

Q. 195. For the present we are not concerned with this matrix or anything beyond the original sound record. I now ask you to describe the material in or upon which you produce the original sound record according to this other system we have just been speaking of?

A. I don't care to state anything about that.

420 Q. 196. When you are making the original sound record according to this other system is your material a cake or plate in the form of a disc?

A. It is recorded on a disc.

Q. 197. On a recording machine the same as or similar to the one employed according to your system discussed on the first day's examination?

A. It is possible to record it on the same machine.

Q. 198. What shape recording stylus do you employ with this second recording material we have just been speaking of?

A. I don't care to state anything about that.

Q. 199. Is this recording stylus circular in cross-section?



A. It is not necessary to have it that way.

421

Q. 200. I have already pointed out to you that a recording stylus circular in cross-section is employed in graphophones and phonographs, and you have stated that such construction was not an invention of your own. I now ask you, do you employ in producing a sound record upon this second kind of recording tablet which we have just been speaking of, a stylus circular in cross-section?

A. No.

Q. 201. Is that stylus semi-circular in cross section? I would remind you that a stylus semi-circular in cross-section is shown in the patent in suit.

A. No.

Q. 202. Has your stylus two or three edges?

422

A. It has neither.

Q. 203. Is the stylus which you employ with this second kind of recording tablet the same as, or substantially similar to, the one you employ in recording upon your tallow-composition tablet?

A. The same could be used on either, but I don't use the same.

Q. 204. Is the stylus employed by you in producing original sound-records upon this second kind of recording disc which we have been speaking of, conical or tapered?

A. It is tapered but not conical.

Q. 205. Is it flattened transversely?

A. I don't care to state anything more about it.

423

Q. 206. When making an original sound-record upon this second kind of recording tablet we have been speaking of, the stylus point is imbedded a slight distance into the material, is it not?

A. I don't care to state anything about it.

Q. 207. Is it imbedded about two one-thousandths of an inch ( $2/1000$ ) (0.002)?

A. I don't care to state.

Q. 208. As your turn-table rotates carrying the recording material under the stylus, does this stylus produce a line or groove in the surface of the material?



- 424 A. I don't care to state whether it does or not.  
 Q. 209. Does the stylus remove small portions of the material in threads or the like?  
 A. No.  
 Q. 210. Does it remove portions of the material in shavings or the like?  
 A. No.  
 Q. 211. What is the action of the stylus upon the material in producing the sound record? I am still asking about this second kind of recording material and stylus.  
 A. I don't care to state anything about it.  
 Q. 212. Has this second kind of recording material any tallow in its composition?  
 425 A. No.  
 Q. 213. Has it any metal in its composition?  
 A. I don't care to state.  
 Q. 214. Is there any lead in it?  
 A. I don't care to state.  
 Q. 215. Is there any antimony in it?  
 A. Same answer.  
 Q. 216. Any bismuth in it?  
 A. Same answer.  
 Q. 217. Still speaking of this second type of recording material, is its surface smoothed off before you make a sound record thereon?  
 A. I don't care to state.  
 Q. 218. Is it smoothed off by a turning tool?  
 426 A. Same answer.  
 Q. 219. Is it smoothed off by placing the tablet upon a turn-table? That is, is the tablet placed upon a turn-table for the purpose of having its surface smoothed off?  
 A. Same answer.  
 Q. 220. We have now discussed two systems for producing sound records—one in which you employ what we have been designating a tallow composition, and the other in which is employed what I have been calling your second type of recording material and your second type of stylus, in connection with which you have an application or ap-

plication.  
 other sys  
 A. I ha  
 Q. 221.  
 A. Yes  
 Q. 222.  
 A. I do  
 they have  
 Q. 223.  
 either on  
 A. I n  
 made by  
 Q. 224.  
 many as  
 other sys  
 A. No,  
 Q. 225.  
 last two  
 according  
 duced in  
 tems any  
 finished  
 herein?  
 A. I ha  
 Q. 226.  
 two nam  
 A. Yes  
 Q. 227.  
 pressed i  
 or the lik  
 A. Yes  
 Q. 228.  
 from an  
 A. Yes  
 Q. 229.  
 record co  
 A. I ha  
 two in p  
 A. We  
 to show  
 patent or



plications for patent pending. Do you employ any other system for producing sound records? 427

A. I have.

Q. 221. More than one other?

A. Yes. two.

Q. 222. Kindly describe each?

A. I don't know as I ought to describe either-- they have never been shown to anybody.

Q. 223. To what extent, if any, have you used either one of these two other systems?

A. I never kept account of how many records I made by them.

Q. 224. Do you know whether you have made as many as fifty original records by either of these two other systems? 428

A. No, I couldn't tell.

Q. 225. I would ask you, still referring to these last two systems, the third and the fourth systems, according to this examination, have you ever produced in accordance with either of these two systems any sound-records which were complete and finished articles and turned over to the defendant herein?

A. I have finished complete records.

Q. 226. Is a matrix employed in either of these last two named systems?

A. Yes.

Q. 227. And in each system, the matrix is impressed into a shellac composition, fibrous material, or the like? 429

A. Yes.

Q. 228. And in each system the matrix is obtained from an original sound-record?

A. Yes.

Q. 229. Of what material is the original sound-record composed, in each system?

A. I have no way of distinguishing between the two in propounding the interrogatories?

A. Well, in one which I will say something about to show that it is nothing like the Bell & Tainter patent on which this suit is based, the material is a



430 soluble in warm water and the original disc is molded so as to give a nice smooth surface, then coated with a film and in recording the film is scratched through to the material. This film is not soluble while the material is. This is washed out so that the lines that are scratched through are dissolved out to the proper depth. Then the material is again coated with a film which renders it insoluble and the matrix is made from this.

Adjourned to two o'clock.

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AFTER RECESS.

431 Q. 230. You have just described briefly what we may for convenience call your "third system." Kindly describe the fourth system you have employed for producing sound records.

A. I do not wish to say anything about that.

Q. 231. You have already testified that the matrix is obtained from an original sound record in this fourth system. Of what material is the original sound record employed in your fourth system.

A. Principally gelatine.

Q. 232. What kind of stylus do you employ in connection with this?

A. I don't care to state.

432 Q. 233. Does it produce a groove in the gelatine?

A. I don't care to state.

Q. 234. Does it act upon the gelatine composition to produce an original sound record?

A. Same answer.

Q. 235. Is any of this gelatine composition material removed in making the original sound record?

A. I don't wish to state.

Q. 236. I refer you to your answer to Q. 25, which will now be shown you, and ask whether by "recorders" in that answer you meant the stylus or recording needle or tool alone, or the entire "sound box" containing a diaphragm, stylus, &c.?

A. The recorder thing like it.

Q. 237. Possibly question, and I want you and repeat the

A. I mean the

Q. 238. Referring in which you employ position," being that you ever examine a record was being microscope or ma

A. No.

Q. 239. Have you stylus when employed after making looking at it through

A. I don't remember the record was being

Q. 240. Are you tallow composition with it according to in under a glass shortly thereafter material could not be from the record-g

A. No.

Q. 241. I would second system, could to make any disc examine a tablet microscope or making thereon,

A. Not while after the record is a glass.

Q. 242. Have your recording second system, what after?

A. After the r



A. The recorder itself. I have never seen any- 433  
thing like it.

Q. 237. Possibly you did not understand my last  
question, and I will therefore have it read over to  
you and repeat the question.

A. I mean the recorder as a whole.

Q. 238. Referring for the moment to your system  
in which you employ your so-called "tallow com-  
position," being the first one described by you, have  
you ever examined a tablet of this composition while  
a record was being made, by watching through a  
microscope or magnifying glass?

A. No.

Q. 239. Have you ever examined the recording-  
stylus when employed with such tablet, or immedi- 434  
ately after making a record upon such tablet, by  
looking at it through a glass?

A. I don't remember ever having done so; while  
the record was being made I am sure I never did.

Q. 240. Are you prepared to swear that if such  
tallow composition tablet, or the needle employed  
with it according to your system, should be exam-  
ined under a glass, while the record was making, or  
shortly thereafter, that minute particles of the mate-  
rial could not be detected as having been removed  
from the record-groove?

A. No.

Q. 241. I would ask you to refer now to your  
second system, concerning which you have declined 435  
to make any disclosures, and ask did you ever ex-  
amine a tablet employed in this system, under a  
microscope or magnifying glass, while a record was  
making thereon, or shortly thereafter?

A. Not while the record was being made, but  
after the record had been made I looked at it through  
a glass.

Q. 242. Have you ever examined through a glass  
your recording stylus or tool employed in this  
second system, while a record was making or shortly  
after?

A. After the record was made.



436 Q. 243. Are you prepared to swear that, if while a record is making according to this second system of yours, the recording-tool and the material adjacent to it should be examined under a glass, small particles of the material could not be observed as having been removed from the groove?

A. Well, there might be very small, minute particles.

Q. 244. If only very small, minute particles should be removed, would it be your opinion that for practical purposes the material was not removed?

A. I don't understand the question.

437 Q. 245. If, in producing an original sound-record, there should be removed from the surface of the material, from the space which constitutes the record-groove, very small minute particles that could be observed under a glass only, would you say that no material was removed in producing that record?

A. Yes.

Q. 246. How large would any particle or thread or portion of the removed material have to be before you would say that in making the record some of the material had been removed?

A. Whatever the width of the groove is. If the whole body was removed out I would call that removed.

438 Q. 247. What is the width of the groove in the original sound-records made by you?

A. I don't know.

Q. 248. Have you any idea?

A. Not as to the exact size.

Q. 249. Q. 246 and your answer thereto are now shown you. I ask you, is it in this sense, and with the understanding expressed in your answer to Q. 246, that you have testified that in making the sound records according to your first system, employing the tallow composition, that the material is not removed to form a groove?

By Mr. W.

I don't understand.

Q. 250. to read and dictate and you have

A. If there is a chip moved.

Q. 251. less than is removed sound record.

By Mr. or second

By Mr. apply to will take may confirm

A. If it be removed

Q. 252. process, could make disc

A. Same

Q. 253. third process water and

Question of an involved opinion no sound

By Mr. that this was answer to we fear for basis for the



By Mr. West:

439

I don't understand the question. I don't quite understand the question.

Q. 250. I now hand you my Q. 246, and ask you to read this question over carefully, and then dictate an answer to the same in place of the answer you have already given.

A. If the whole width of the groove be removed in a chip or a shaving I would consider that removed.

Q. 251. And if the chip or shaving, or a thread less than the whole width of the groove be all that is removed, would you say that in making that sound record the material had not been removed?

440

By Mr. West: Does this question refer to the first or second process?

By Mr. Massie: I had intended the question to apply to any process. But to avoid confusion we will take the processes up in order. The witness may confine his answer to the first process.

A. If only small particles and not the whole body be removed I would not consider that removed.

Q. 252. Q. 251 is now repeated as to the second process, concerning which you have declined to make disclosures?

A. Same answer.

Q. 253. The same question is repeated as to the third process, employing the material soluble in hot water and covered by a film?

441

Question is objected to as not being capable of an intelligent answer. The question seems to involve no matter of fact but a mere question of opinion as to a hypothetical question that has no sound basis to rest upon.

By Mr. Massie: We are not yet prepared to admit that this witness is incapable of giving an intelligent answer to any question propounded him. Nor that we fear from the record that there was no sound basis for this question.



442 A. Same answer as before.

Q. 254. The same Q. 251 is repeated as to the fourth process, employing the gelatine or gelatinous composition?

A. In the recording of that record positively nothing is removed.

Q. 255. You have now referred to four different systems. Have you employed any other system besides these four in producing sound records?

A. I have made a few etched records. That's all.

443 Q. 256. In dealing with your first and second systems, I understand your testimony to be that if the whole body of the material be removed from the groove in forming the groove, then you would understand that the groove had been produced by removing the material; but that, if less than the whole body of the groove, its entire width and full depth, was all that is removed, then in producing that record the material was not removed. Is this a correct statement of your views; and if not please correct me.

Question objected to as to form and calls for no question of fact nor would any answer that could be given to it amount to evidence in the case.

444 By Mr. Massie: The question is framed to avoid any misunderstanding, and to bring out the truth. The witness can say that the statement in my question is correct, if such be the case; and is likewise given an opportunity to point out wherein the statement is incorrect, if such be the case, and he is invited to give a correct statement according to his own views.

A. I believe the question has been answered before, has it not?

Q. 257. Will you kindly answer it again?

A. I refuse to answer that question.

By Mr. Massie: This attitude on the part of the witness is called to the attention of the Court.

Q. 258.

tallow composition, the groove had been removed or the reverse.

Q. 259. Have you employed any other system besides these four in producing sound records?

A. I have made a few etched records. That's all.

Q. 260. In dealing with your first and second systems, I understand your testimony to be that if the whole body of the material be removed from the groove in forming the groove, then you would understand that the groove had been produced by removing the material; but that, if less than the whole body of the groove, its entire width and full depth, was all that is removed, then in producing that record the material was not removed. Is this a correct statement of your views; and if not please correct me.

Q. 261. Have you employed any other system besides these four in producing sound records?

A. I have made a few etched records. That's all.

Q. 262. Will you kindly answer it again?

A. I refuse to answer that question.

By Mr. Massie: This attitude on the part of the witness is called to the attention of the Court.



Q. 258. If in producing the record groove in the 445  
tallow composition, according to your first named  
system, material amounting to half the contents of  
the groove should be removed, would you say that  
groove had been produced by removing the material,  
or the reverse?

Question objected to as incompetent and im-  
material and based upon a hypothesis that has  
no foundation in the testimony and asks a mere  
expression of opinion of the witness which goes  
to the law of the case and is not calculated to  
elicit any fact which would be of any service to  
the Court. In short the question asks the wit-  
ness to adjudicate the suit.

446

A. I would say half was removed.

Q. 259. Would you say that the record groove had  
not been produced by removing the material?

Same objection.

A. I don't care to answer that! I can't give an  
intelligent answer; I am not authority on that.

Q. 260. Is it not a fact that the hard disc records  
for the defendant, the Universal Talking Machine  
Manufacturing Company, are pressed from the elec-  
troplate matrixes by the Auburn Button Works at  
Auburn, New York?

Objected to as immaterial. Question calls for  
private matters of business.

447

A. I don't positively know that they are. I was  
once at the Auburn Button Company works and  
was refused admittance.

Q. 261. Is that the best answer you can make?

A. Yes; I don't know positively that they are  
pressed there.

Q. 262. I again hand you a copy of the Cheney  
affidavit heretofore given in this suit, verified June  
18, 1902, and ask if the statement in the last sen-  
tence of the third paragraph of the first page of this  
affidavit is a true statement or not?



448 A. That is what I have been told; I don't know for sure.

Q. 263. You had no hesitancy in making the statement in your affidavit as a positive assertion, did you?

A. It was put in on the strength of what some one else said; I supposed they were made there.

Q. 264. Who prepared the labels upon the defendant's records?

A. I don't care to answer that.

Q. 265. Are these labels found upon the matrixes produced by yourself?

A. Same answer.

449 Q. 266. Are these labels found or placed upon the original recording tablet?

A. Same answer.

Q. 267. If they were placed upon the original recording tablet you would know that fact, would you not?

A. I don't know.

Q. 268. Do you mean to say that from the time the original record is made until the time it is placed in the electroplating bath the original sound record passes out of your control, so that some other person might do something to it without your knowing it?

A. It is possible, yes.

450 Q. 269. Is it a fact? Is it not the fact that you have entire charge and control of these original sound-records from the time they are smoothed for recording, continuously, until the electroplate matrix has been produced?

A. Yes.

Q. 270. Then, could some one else, as the regular practice, place a title or label or lettering or the like upon such original sound-records without your knowledge?

A. Yes, the electrotyper could.

Q. 271. Does he?

A. Yes, he has placed marks on them.

Q. 272. "Zonopho-

A. Yes.

Q. 273. the market

A. I don't see any

Q. 274. any of def

A. I don't see any of the records that

Q. 275. marked, "Xyophone"

P. Lowe.

that record

A. I never

Q. 276. commercial re-

your system

A. I don't know

Q. 277. disc sound

rights reser-

Orchestra,

record as c-

by yourself

A. I don't know

Q. 278. of this title

records are

Q. 279. Do you not

taken from

selves pro-

A. The

Q. 279. ion as to

fore us w-



Q. 272. What title do your sound-records bear, 451  
"Zonophone Records"?

A. Yes.

Q. 273. This title appears upon the records put on  
the market, does it not?

A. I don't know positively. I am not in a position  
to see any records placed on the market.

Q. 274. Have you ever seen, as a matter of fact,  
any of defendant's zonophone records?

A. I don't remember having seen any of the Uni-  
versal Talking Machine Manufacturing Company's  
records that are sold.

Q. 275. I hand you a large black disc record  
marked, "Zonophone Record, all rights reserved.  
Xyophone Solo. 1' Fire Fly Galop by Mr. Chas. 452  
P. Lowe. 836." And ask you do you recognize  
that record as one made by yourself?

A. I never made this record.

Q. 276. I mean, do you recognize that as a com-  
mercial record produced by yourself or according to  
your system for this defendant?

A. I don't know, these are very easily counter-  
feited. This might be a counterfeit.

Q. 277. I likewise produce a second, smaller black  
disc sound record, marked "Zonophone Record; all  
rights reserved. 1. Away to Espana. By Hager's  
Orchestra, 1818," and ask you do you recognize this  
record as one produced from an original record made  
by yourself? 453

A. I don't recognize this, but have made a record  
of this title and by Hager's Orchestra. These black  
records are easily counterfeited.

Q. 278. What do you mean by "counterfeited"?  
Do you mean that these are copies or transfers  
taken from genuine sound records that were them-  
selves produced from originals made by you?

A. They may have been made that way.

Q. 279. I did not ask you, at this time, your opin-  
ion as to how these two particular articles now be-  
fore us were made; but asked you to explain what



454 you mean by saying they may have been "counterfeited"?

A. They may have been taken from a record that was pressed from the original matrix.

Q. 280. If we assume for the moment, which complainant certainly does not do, that these two articles now before us are in fact counterfeits obtained from a genuine record, then would not these articles before us correspond in surface irregularities to the genuine articles of which they are counterfeits.

A. That would depend on how they were counterfeited.

455 If they were made on a dubbing machine the grooves and surface would not be exactly the same as the originals, as in dubbing a blank is revolved at the same speed as the record, a needle is placed on the record, while at the other end of the bar a sharp instrument is placed and as the record revolves causes the sharp instrument to form a corresponding groove on the blank. If the instrument used in making the dub record is not the same as the one used in recording, the sound groove will be different in width, depth; or if the leverage is not the same they may be either larger or smaller.

Q. 281. Would a dubbing machine transfer to the duplicate or copy the lettering found in the central field of the genuine record which had been employed as a master?

456 A. No, but the type can be bought, and any engraver can make a fac-simile of the label.

Q. 282. These records are either genuine zono-phone records or they are copies obtained from a matrix produced from genuine records, or they are counterfeits made by some person or concern who likewise counterfeited the title and other parts. Would that be your conclusion?

A. I haven't heard the records, so I couldn't swear as to that.

By Mr. Massie: Complainant's counsel requests defendant's counsel to stipulate that these two arti-

cles now be  
and 277, we

By Mr. W.  
stipulation a

Comp  
proof of  
requests  
identific  
"Zono

Q. 283. C.  
Record No.  
in the cent  
concentric.  
tilting the d

A. Yes, I

Q. 284. C.  
presence?

A. There  
be caused.

Q. 285. A  
by yourself

A. On so  
similar ma

Q. 286. O  
similar ma  
duced; wh

A. I don

Q. 287. A  
ings upon s  
by you, we  
the origina

A. No, I  
any mark  
caused by

By Mr.  
counsel thi  
five minut  
3.45, an ad  
morrow, s



cles now before him, already identified in Qs. 275 457  
and 277, were sold or put out by this defendant.

By Mr. West: I decline at present to make the  
stipulation asked for.

Complainant's counsel reserves for the present  
proof of the source of these two articles, but  
requests the Examiner to mark the same for  
identification "Zonophone Record 836" and  
"Zonophone Record 1818," respectively.

Q. 283. Calling your attention to the Zonophone  
Record No. 1818, there are a number of markings  
in the central field, which appear to be practically  
concentric. Can you observe them, especially by  
tilting the disc? 458

A. Yes, I see them.

Q. 284. Can you in any way account for their  
presence?

A. There are several ways by which these could  
be caused.

Q. 285. Are such markings on the records put out  
by yourself or the defendant?

A. On some of my records they may have had  
similar markings.

Q. 286. On those records of yours, which had  
similar markings, how were those markings pro-  
duced; what caused them?

A. I don't care to answer that.

Q. 287. Are you prepared to deny that the mark- 459  
ings upon some of your records, as just referred to  
by you, were produced from similar markings upon  
the original recording material?

A. No, I am not prepared to deny it. but I think  
any marks such as on this particular record are  
caused by the buffing of the matrix.

By Mr. Massie: At the request of defendant's  
counsel this morning's session was adjourned twenty-  
five minutes ahead of time; by like request now, at  
3.45, an adjournment is taken until 11 o'clock to-  
morrow, same place.



460

NEW YORK, July 9, 1902.

Met pursuant to adjournment.

Present as before.

## EXAMINATION OF GEORGE K. CHENEY CONTINUED:

Q. 288. I now produce a black disc sound-record already introduced in connection with our motion for preliminary injunction, identified as "Zonophone Record 1702," and ask do you recognize this article as one put out by defendant?

461

A. No.

Q. 289. Do you recognize it as made from an original sound-record of yours?

A. The labeling looks very much like one that I have made.

Q. 290. I produce another black disk sound-record, already introduced in this case in connection with our motion for preliminary injunction, and identified as "Zonophone Record 1823," and ask do you recognize this article as one put out by defendant?

A. No.

Q. 291. Do you recognize it as made from an original record produced by yourself?

462

A. Same answer, the label looks like it. There was never any such business as that (spot on the face) on any original I ever made.

Q. 292. By the "spots on the face" or the "such business as that" in your last answer, do you refer to the appearances in the central field as if something had been pasted there and a little of the mulilage remained?

A. I referred to the smooth part of the record.

Q. 293. Do observe upon the central field of each of these two articles, No. 1702 and 1823, a series of markings of some sort, which appear to be concentric?

A. Yes.

Q. 294. I

A. I decl

Q. 295. Y

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in making business.

Q. 296. V

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A. Yes.

Q. 297. Y

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Q. 304.

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Q. 294. How do you account for these markings? 463

A. I decline to answer.

Q. 295. Why?

A. Because that is in part with the system I use in making records which I claim as my personal business.

Q. 296. When you say the system is your personal business, do you mean that it is not the business of the defendant also?

A. Yes.

Q. 297. Yes, it is also the property of the defendant; or, yes, it is not the property of the defendant also? Which do you mean?

A. I would rather you would ask one question at a time, please. 464

Q. 298. (Q. 296 repeated, and the witness is requested to give a specific answer.)

A. I do not understand the question (question is read over to the witness). A. No, it is not the property of defendant.

Q. 299. Your system, or systems, for producing sound-records, involving the step which causes these concentric markings to appear on the sound-record, is employed for the benefit of the defendant?

A. Not that I am aware of.

Q. 300. For whom do you make sound-records?

A. My employers.

Q. Who are your employers?

A. Universal Talking Machine Company. 465

Q. 302. Where does that concern have its office?

A. I don't know.

Q. 303. Where does that concern do business, if you know?

A. I don't know that either.

Q. 304. Who is the president of the Universal Talking Machine Company?

A. I believe Mr. Spencer is.

Q. 305. What is Mr. Spencer's first name, and give his address if you know it?

A. I don't know his first name, but think he can



466 be found at Ninetieth street and Broadway in the Gorham Manufacturing Co.

Q. 306. Who is the vice-president of the Universal Talking Machine Company?

A. I believe it is F. A. Crandall.

Q. 307. And the secretary?

A. That I don't know.

Q. 308. Does the Universal Talking Machine Company sell any goods?

A. I don't know.

Q. 309. Does the Universal Talking Machine Manufacturing Company sell any goods?

A. I don't know positively.

Q. 310. What becomes of the sound-records prepared by the Auburn Button Works, which concern you have told us in your affidavit herein presses the hard disc records from the electrotype matrixes made under your superintendence?

Question objected to as calling for secondary evidence and hearsay.

By Mr. Massie: The objection is excepted to as premature, because it does not yet appear that it will call for secondary evidence. It is further excepted to as an attempt to prompt the witness.

A. I don't know.

Q. 311. You have already testified that you don't know that the Auburn Button Works presses the hard disc records, although you were willing to make that statement in your affidavit. Have you any information, has any one ever told you, whether the Universal Talking Machine Manufacturing Company sells the sound-records made by the Auburn Button Works?

Question objected to as calling for secondary evidence and hearsay evidence.

By Mr. Massie: We respectfully submit that if this witness undertakes to make affidavit stating as facts certain matters which he has since told us he has no knowledge of, then it is competent to ask him

if he has knowledge of the matters connected with them.

A. I have heard the Universal Talking Machine Company from them.

Q. 312. I have heard the Universal Talking Machine Company sound-records.

A. No, I have not.

Q. 313. I have heard the Universal Talking Machine Company sound-records.

A. I believe so.

Q. 314. I have heard the Universal Talking Machine Company sound-records in the city, or at the factory?

A. At the factory.

Q. 315. I have heard the Universal Talking Machine Company sound-records.

& Fowler?

A. Yes.

Q. 316. I have heard the Universal Talking Machine Company sound-records.

cern sells the sound-records.

A. They do not.

they do not.

Q. 317. I have heard the Universal Talking Machine Company sound-records.

tion, I have heard the Universal Talking Machine Company sound-records.

matrixes pressed from the electrotype matrixes.

explanation of the process.

repeated?

A. Same.

year, I have heard the Universal Talking Machine Company sound-records.

Q. 318. I have heard the Universal Talking Machine Company sound-records.

affairs and the sound-records.

am competent to answer.

ary--what?

A. It is the same.

ones, official.

Q. 319. I have heard the Universal Talking Machine Company sound-records.

the latter.



if he has been informed, or if he has received any 469  
knowledge concerning important and material mat-  
ters connected with the same.

A. I have been told that the Auburn Button  
Works presses records, and I believe that I have  
heard the Universal Talking Machine Manufactur-  
ing Company sells records; I never bought one  
from them.

Q. 312. Do you know where the Universal Talk-  
ing Machine Manufacturing Company sells its  
sound-records?

A. No, I do not.

Q. 313. Have you any belief on the subject?

A. I believe they sell them at their office, I am not  
sure. 470

Q. 314. At No. 23 East Twentieth street in this  
city, or at No. 52 East twenty-third street in this  
city?

A. At 23 East Twentieth street.

Q. 315. Did you ever hear of the firm of Gooday  
& Fowler?

A. Yes.

Q. 316. Do you know whether or not this con-  
cern sells zonophone records?

A. They used to sell them; I don't know whether  
they do now or not.

Q. 317. By "Zonophone records" in my last ques-  
tion, I mean the hard disc records produced from  
matrixes prepared under your supervision; with this 471  
explanation in mind, the foregoing question is now  
repeated?

A. Same answer. I haven't been in there in a  
year, I guess.

Q. 318. I do not desire to intrude into your private  
affairs any further than I can possibly help, but I  
am compelled to ask you: who pays you your sal-  
ary--what officer?

A. It is brought to the laboratory by different  
ones, office boys, and sometimes Mr. Hass.

Q. 319. Do you receive cash or a check; and if  
the latter, who signs such checks--what officer?



472 A. I receive cash generally; I believe I have received a check; I think Mr. Crandall signed it; I am not sure.

Q. 320. Was this check, or were these checks, if more than one, signed by Mr. Crandall personally, or by him as officer of some company?

A. I don't remember that.

Complainant's counsel requests counsel for the defendant, in order to save time, to stipulate that the two records produced this morning, which constituted exhibits identified by Joseph W. Jones in his affidavit in connection with our motion for preliminary injunction, were put out by the defendant, The Universal Talking Machine Manufacturing Company.

473

By Mr. West:

I decline to make the stipulation.

Complainant's counsel reserves for the present proof of the source of these two articles.

Q. 321. Bearing in mind the four different systems of producing sound-records by yourself, which have been discussed during this examination, about what proportion of original records made by you were produced by employing your tallow-composition tablets?

474 A. The larger portion of them.

Q. 322. Do you obtain crude tallow, or tallow that has been already "rendered" or purified?

A. I decline to answer that.

Q. 323. Why?

A. Because that contains the secrets of my business.

Q. 324. Do you regard the step of purchasing crude tallow as a secret invention of your own?

A. No; but it tells to a certain extent what I use which I do not care to have other parties know about.

Q. 325. Do you purchase the tallow at a drug

store?

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store? I call your attention to your answer to 475  
Q. , in which you say, as I now recall, that  
the tallow "may be purchased at any drug store"?

A. Yes, it can be bought at any drug store I ever  
asked for it.

Q. 326. Do you obtain the tallow in large quanti-  
ties, or from day to day?

A. I get it as I need it.

Q. 327. Do you have any difficulty in keeping the  
tallow?

A. None.

Q. 328. You have told us that when you could  
not get tallow you have sometimes employed  
stearic acid or stearine. Does this give the same  
results, or substantially the same results, as if tal- 476  
low were employed in your composition tablet?

A. I decline to answer.

Q. 329. Does the recording stylus act upon the  
stearine composition tablet in the same way as it  
acts upon the tallow composition tablet, while mak-  
ing the original record groove?

A. Same answer.

Q. 330. On what ground do you decline to an-  
swer?

A. That you are trying to find out the secrets of  
my material.

Q. 331. When stearine is employed in your record-  
ing material, does the stylus in producing the record  
groove remove any of the material in shavings or 477  
threads?

A. No.

Q. 332. If a needle or knife point be scratched  
across the surface of a cake of stearine, to produce a  
zigzag line, will any of the material be removed?

A. I don't know.

Q. 333. If your recording-stylus be caused to pro-  
duce a zigzag groove in or upon the surface of stea-  
rine, will any of the material be removed?

A. Same answer.

Q. 334. I produce a cake of whitish looking mater-



478 ial which has a rather rough surface. Have I described this cake fairly accurately?

A. Yes.

Q. 335. I have drawn across its surface the end of an ordinary pin and produced a shallow, wavy line. Has any of the material been removed?

A. Not from the surface.

Q. 336. Has the material been removed from the groove or line made by the pin point?

A. I can't see it very well, but I should think it had.

Q. 337. I ask you to look at this whitish cake again, smelling it if you desire, and tell us if you have any idea what it is?

479 A. I couldn't swear as to what it is.

Q. 338. It looks like stearine, does it not?

A. Yes.

Complainant's counsel asks the Examiner to make this article for identification "Cake of Stearic Acid," with the date.

Q. 339. Calling your attention once more to this cake of stearine and the line I scratched in it with the end of a pin, I would ask you whether in your opinion that line was produced by removing the material?

A. No. I don't think so.

480 Q. 340. I now produce a small cake of yellowish white material wrapped in oil paper and foil, and presenting somewhat the appearance of ivory or green cheese. Is that a fairly accurate description?

A. Yes.

Q. 341. This cake has a fairly smooth upper surface, but not perfectly smooth or polished, a sort of dead finish. Is that correct?

A. Yes.

Q. 342. I have made a shallow zigzag line with the end of a small knife-blade. Has any of the material been removed in making this line?

A. The line scratched in the material has thrown up a chip.

Q. 343.

or groove moved; or the material

A. Wh groove.

Q. 344.

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Q. 343. Would you say that in producing this line 481  
or groove or scratch the material had been re-  
moved; or, that the groove was made by removing  
the material?

A. Why, part of it certainly is removed from the  
groove.

Q. 344. This little cake you have just been hand-  
ling has a tendency to become soft under the heat  
of your hand, even to melt, has it not?

A. Yes.

Q. 345. How does this cake compare in hardness  
with your recording-material?

A. I decline to state.

Q. 346. Have you any idea what this material is?

A. I should think it was cocoa butter. 482

Complainant's counsel requests the Examiner  
to mark this article for identification "Cake of  
Cocoa Butter," with the date.

Q. 347. I made an attempt yesterday to obtain a  
small portion of tallow, but without success. Can  
you tell me where I can purchase a small cake or  
portion of tallow?

A. Eimer & Amend, Eighteenth street and Third  
avenue; you can get it.

Q. 348. Your answer to Q. 120 the other day does  
not appear in the transcript as I understood it at the  
time, and I daresay I misunderstood you. I will put  
the question in another form: If a needle be 483  
presented at an angle along the top of butter,  
with the upper end pointing towards yourself, and  
then the needle be drawn across the butter towards  
yourself, would it remove any particle of this but-  
ter?

A. I should say not.

Q. 349. If the needle be at the same angle with the  
butter, as in the preceding question, and drawn  
towards you as before, but made to produce a wavy  
or zigzag line, then would any of the material be  
removed?

A. I should say not.



484 Q. 350. If the needle be at the same angle to the butter, but be pushed away from you, to produce a similar zigzag line, then would any of the material be removed?

A. I should think it would.

Q. 351. If the butter were sufficiently hard, frozen for example, then would the needle, even if drawn towards you, remove any of the material?

A. I don't know.

Q. 352. What is your opinion?

A. I don't think it would.

Q. 353. Is your recording-stylus placed at an angle to the surface of the recording-material or tablet?

485 A. I decline to answer.

Q. 354. That is the common position generally employed in producing original sound-records, is it not?

A. Same answer.

Q. 355. I don't think you understood the last question. I mean it is the common practice by other makers of sound-records to have the recording-stylus presented to the recording-material at an inclination, that is, not at right angles or normal to the surface.

A. I don't know very much about other people's methods.

486 Q. 356. With regard to your second method, concerning which you have declined to commit yourself as to whether or not the recording material contains any metal or alloy, I would ask if you will produce at a future session, in the presence only of yourself, the typewriter and counsel here present, a small portion of that recording material?

A. No; I wouldn't care to do so.

Q. 357. I ask if you will permit complainant's counsel, or other representative, to be present while you are producing a sound record by this second process or system?

A. No, I wouldn't care to have them see it.

Q. 358. Questions 356 and 357 are repeated with re-

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gard to your third (or film) system and your fourth 487  
(or gelatinous) system?

A. Same answer.

Q. 359. Are you familiar with sound records made  
by Joseph W. Jones, of this city?

A. No, I don't think I am. Do you refer to his  
patents? I have read over the claims in that.

Q. 360. Was it from the patent you have just re-  
ferred to that you gathered the information that  
Jones' records have been largely upon the market  
for more than three and a half years?

A. I have never heard or seen any of his records  
on the market, except his dub records.

Q. 361. When in your affidavit, herein verified 488  
June 18, 1902, you say: "Records like those re-  
ferred to in the affidavit of Joseph W. Jones," what  
records did you intend?

A. Any disc record with a lateral sound vibration.

Q. 362. You do not mean to include the old Ber-  
liner records, produced by the etching step, do you?

A. Yes, I refer to any disc record.

Q. 363. Have you ever made an original sound  
record in the manner disclosed in the Joseph W.  
Jones' patent to which you referred a little while  
ago?

A. I have made experimental records as near to  
his claims as I could go.

Q. 364. In doing this work, what material did you  
employ for producing the original sound-records? 489

A. I don't remember now, what it was, it was  
quite a while ago.

Q. 365. About how long ago?

A. Some time after the issue of his patent, I be-  
lieve.

Q. 366. In producing the original records, during  
the course of the experimenting, was the material  
removed in forming the record-groove?

A. I believe it was. I don't remember very dis-  
tinctly about it.

Q. 367. You have testified in substance that when  
you make original sound-records the machine is



490 concealed from the performers, and the horn is stuck through a hole in a partition or screen. That is correct?

A. Yes.

Q. 368. If the performer should remain in the room where he had just sung, and if a comparatively feeble reproduction should be obtained from the original record just produced, would the performer be able to hear it?

A. Yes, I think he could to a certain extent; I don't suppose he could distinguish all the words.

Q. 369. Have you ever given such reproduction of an original sound-record made by yourself, while the performer remained in the adjoining apartment?  
491

A. Yes, test records.

Q. 370. What do you mean by "test records"; what records are "test records?"

A. Those are records that I make to get some idea as to the position of the singer and they are never finished; there are never any matrixes made from them. They are destroyed by the attempt at reproducing them.

Q. 371. After your record has been put in the electroplating bath and the electroplate matrix has been deposited thereon, and the whole removed from the bath, can the original sound-record be employed again for producing a second matrix?

492 A. No.

Q. 372. Can the same cake or tablet be employed again for producing another original sound-record?

A. I decline to answer.

Q. 373. After the electroplate matrix has been obtained is anything further done with it before you send it out?

A. Why, there is something else done to the matrix.

Q. 374. What?

A. I decline to state.

Q. 375. Are their edges trimmed?

A. Same answer.

By Mr. that before examination order from ous question declined to a will rely taken, and motion for will, by s Office Bu tomorrow he will a ng, in cas

By Mr. and it is notice.

By Mr. that the until the above m day weel on that heard.

Adjou



By Mr. Massie: Complainant's counsel now states 493  
that before proceeding any further with the direct  
examination of this witness he desires to obtain an  
order from the Court to compel answers to the vari-  
ous questions which the witness has heretofore de-  
clined to answer. At the hearing of the motion he  
will rely upon the pleadings and the proofs so far  
taken, and also the affidavits filed in support of our  
motion for preliminary injunction. Judge Thomas  
will, by special appointment, hear a case in the Post  
Office Building, in the Borough of Manhattan, to-  
morrow morning; defendant's counsel is asked if  
he will accept notice, returnable to-morrow morn-  
ing, in case his Honor will consent to hear us.

By Mr. West: It is now five minutes to 1 o'clock, 494  
and it is impossible for me to accept such short  
notice.

By Mr. Massie: I am advised by the Clerk's office  
that the next motion calendar will not be called  
until the 18th inst. Notice is hereby given that the  
above mentioned motion will be brought on on Fri-  
day week, July 18, 1902, at the opening of the Court  
on that day or as soon thereafter as counsel can be  
heard.

Adjourned subject to notice.



496 IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

vs.

497 ~~UNIVERSAL~~ TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Patent No.  
341,214 (Sound  
Record).

Notice.

To HALBERTUS WEST, Esq.,  
GEO. CARLETON COMSTOCK, Esq.,  
68 William Street, City,  
Of Counsel for defendant.

498 Please take notice that on next Friday, July 18,  
1902, on the opening of the Court on that day or so  
soon thereafter as counsel can be heard, I shall move  
this Honorable Court in the Court Room thereof, in  
the Post Office building in the City of New York,  
for an *order* requiring George K. Cheney, a witness  
subpoenaed on behalf of complainant, to make an-  
swer to the interrogatories which he has heretofore  
failed or refused or declined to answer;

And for a further *order* granting permission to  
complainant's counsel and representatives to inspect  
the process and systems of producing sound records  
by and on behalf of this defendant; or in the alter-  
native for a preliminary injunction order pursuant  
to the prayers of the bill; and for such other and  
further relief as the equity of the case may require.

At the hearing I shall rely on the pleadings and

affidavit  
Cheney  
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affidavits already on file and the deposition of 499  
Cheney heretofore taken, copies of all of which have  
already been delivered to you.

Dated New York City, July 14, 1902.

Respectfully yours,  
C. A. L. MASSIE,  
Of Counsel for Compls.

(Endorsed)—U. S. C. C., S. D., N. Y.—American  
Graphophone Co. *vs.* Universal Talking Machine  
Co.—In Equity. No. 8055.—Motion to compel  
witness to answer, for inspection, etc.—Elisha  
K. Camp, Solr. for Complt. 277 Bd. City.—  
Copy of within notice received this 14th day of  
July, 1902. Olney & Comstock, Of Counsel for 500  
Defendant.—U. S. Circuit Court, Southern Dis-  
trict of New York.—Filed Sept. 5, 1902.—John  
A. Shields, Clerk.

U. S. CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

VS.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
*et al.*

501

Motion for Preliminary Injunction.

LACOMBE, Circuit Judge:

When this motion was under advisement some  
weeks ago, the circumstantial evidence presented by  
the markings on the disks was most persuasive; it



502 was difficult to understand how it could be possible that the effect could be produced in a substance so soft it could be pushed aside without cutting or removal. Nevertheless the sworn denials were so positive, it seemed better to leave the question to be determined until after the proofs had been taken. The evidence which has now been presented by the defendant, many questions quite crucial in their character not being answered, does not overcome the case made by the exhibits and the affidavits presented on the original motion. The motion now renewed, upon the pleadings and affidavits already on file, the exhibits heretofore presented, the deposition of Cheney and the affidavits submitted by

503 defendant, is granted and preliminary injunction as prayed will issue. Injunction not to become operative for ten days after this decision, and if within such time defendants take an appeal and claim preference, an order will be made staying operation of the injunction until after decision of Court of Appeals.

September 3, 1902.

(Endorsed)—Circuit Court of the United States, for the Southern District of New York.—*Amer. Graphophone Co. vs. Universal Talking Machine Co.*—Memo. Opinion, Lacombe, J.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 5, 1902.—John A. Shields, Clerk.

504

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**Proposed Order.**

505

IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.

506

**Order Granting Injunction.**

This cause coming on to be heard on August 6, 1902, upon complainant's application for preliminary injunction, and upon the bill of complaint and the affidavits of J. W. Jones, S. T. Cameron, and E. D. Easton for complainant; and upon the affidavits of H. Albertus West, L. P. Valiquet, F. A. Crandall and George K. Cheney, and the second affidavits of said Crandall and said Cheney for defendant; and C. A. L. Massie, Esq., being heard for the motion, and H. Albertus West, Esq., opposed; and it appearing to the Court that defendant's hard disk sound-records have been produced from original sound-records engraved in wax-like material by the employment of engraving apparatus and the engraving method; and the Court being fully advised in the premises, it is this day

507

Ordered, that the defendant Universal Talking Machine Manufacturing Company and its associates, attorneys, successors, assigns, servants, clerks, agents and workmen, and each of them, be, and they hereby are strictly enjoined and forbidden



508 *pendente lite* from directly or indirectly making or causing to be made, any disk sound-record like or similar to those made exhibits in this case, likewise any disk-sound records whose production involved the employment of the engraving method of producing the original record or the use of the wax-like recording material or engraving apparatus; likewise any matrix obtained from such original engraved sound-record or from such wax-like original; likewise any engraving apparatus, tool or appliance.

It is further ordered that this injunction order shall not become operative until September 13, 1902.  
Dated September , 1902.

509

U. S. Circuit Judge.

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IN THE CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

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AMERICAN GRAPHOPHONE COMPANY

v.

510 UNIVERSAL TALKING MACHINE MANUFACTURING COMPANY.

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In Equity.

**Order Granting Injunction.**

This cause coming on to be heard on August 6, 1902, upon complainant's application for preliminary injunction, and upon the bill of complaint and the affidavits of J. W. Jones, S. T. Cameron, and E. D. Easton, and the deposition of Cheney and the exhibits heretofore presented, for complainant; and upon

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the affidavits of H. Albertus West, L. P. Valiquet, 511  
F. A. Crandall and George K. Cheney, and the second affidavits of said Crandall and said Cheney for defendant, and C.-A. L. Massie, Esq., being heard for the motion, and H. Albertus West, Esq., opposed; it is this day

Ordered, that the defendant Universal Talking Machine Manufacturing Company and its associates, attorneys, successors, assigns, servants, clerks, agents and workmen, and each of them, be, and they hereby are strictly enjoined and forbidden *pendente lite* from directly or indirectly making or causing to be made, using or causing to be used, selling or causing to be sold, any disk sound-record like or similar to those made exhibits in this case, 512  
likewise any disk sound-records whose production involved the employment of the engraving method of producing the original record or the use of the wax-like recording material or engraving apparatus; likewise any matrix obtained from such original engraved sound-record or from such wax-like original; likewise any engraving apparatus, tool or appliance.

It is further ordered, that this injunction order shall not become operative until September 13, 1902.

Dated September 9, 1902.

(Signed) E. HENRY LACOMBE,  
U. S. Circuit Judge.

(Endorsed)—U. S. Circuit Court, S. D. N. Y.— 513  
American Graphophone Co. vs. Universal Talking Machine Manufacturing Co.—In Equity.—Order Granting Injunction.—Elisha K. Camp, Solicitor for Complainant, 277 Broadway, New York City.—Copy Rec'd. Sept. 8, 1902, H. A. West, Solr. for Defendants.—U. S. Circuit Court, Southern District of New York.—Filed Sept. 9, 1902.—John A. Shields, Clerk.



514 IN THE CIRCUIT COURT OF THE UNITED  
STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

v.

515 UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.

Order amending injunction order of Septem-  
ber 9, 1902.

The injunction order heretofore granted herein and entered and filed on September 9, 1902, is upon motion of complainant's counsel amended as follows, that is to say:

The Clerk will interline in line 4 of the said order, after "E. D. Easton," the words "and the deposition of Cheney and the exhibits heretofore presented."

516 This order and amendment to be operative, *nunc pro tunc*, as of the date of the original order of September 9, 1902.

Dated September 15, 1902.

(Sd.) E. H. LACOMBE,  
U. S. Circuit Judge.

(Endorsed)—U. S. Circuit Court, S. D. of N. Y.—Amer. Grapg. Co. vs. Universal Talking Machine Mfg. Co.—In Equity.—Order Amending Order of Sept. 9, 1902.—Elisha K. Camp, 277 B'way, N. Y.—Compt.'s Solr.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 15, 1902.—John A. Shields, Clerk.

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UNITED

NEW YORK.

At a Stated Term of the United States Circuit Court for the Southern District of New York, in the Second Circuit, held at the Court Rooms of said Court, in the Post Office Building, in the City of New York, Borough of Manhattan, the 16th day of September, 1902.

Present—HONORABLE E. HENRY LACOMBE,  
*Circuit Judge.*

THE AMERICAN GRAPHOPHONE  
COMPANY,  
Complainant,

VS.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

518

This cause coming on to be heard on August 6, 1902, upon complainant's application for preliminary injunction, under claims 7, 10, 17 and 18 of the patent referred to in the bill of complaint, and upon the pleadings herein, and the affidavits of J. W. Jones, S. T. Cameron and E. D. Easton for complainant, and upon the affidavits of H. Albertus West, L. P. Valiquet, F. A. Crandall and George K. Cheney, and the second affidavits of said Crandall and said Cheney for defendant, and C. A. L. Massie, Esq., being heard for the motion, and H. Albertus West, Esq., in opposition, it is this day

519

Ordered, that so much of the motion as relates to inspection of premises, and to answers to interrogatories, be, and the same hereby is, reserved



520 pending the determination of the appeal from order of preliminary injunction.  
September 15, 1902.

E. H. LACOMBE,  
U. S. C. J.

(Endorsed)—U. S. Circuit Court, Southern Dist. of New York.—American Graphophone Company, Complainant, vs. Universal Talking Machine Manufacturing Company, Defendant.—Order.—H. A. West, Solicitor for defendant.—Copy received this 11th day of Sept., 1902.—C. A. L. Massie, Counsel for Complt.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 16, 1902.—John A. Shields, Clerk.

521

UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,

VS.

522 UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

The cause coming on to be heard on motion to suspend the operation of the preliminary injunction granted herein, and it appearing that the defendant has duly taken an appeal to the United States Circuit Court of Appeals for the Second Circuit, and that preference has been duly claimed;

Now, on motion of H. A. West, Esq., Solicitor for the defendant, it is

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Ordered, that the operation of the preliminary injunction issued herein be and the same hereby is stayed until the hearing and determination of the said appeal by the said United States Circuit Court of Appeals. 523

Dated September 16, 1902.

E. H. LACOMBE,  
U. S. Circuit Judge.

(Endorsed)—U. S. Circuit Court, Southern District of New York.—American Graphophone Co. *vs.* Universal Talking Machine Manufacturing Co.—Order.—H. A. West, Solicitor for Defendant, 58 William St., New York.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 16, 1902.—John A. Shields, Clerk. 524

UNITED STATES CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,

vs.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

525

The above named defendant, considering itself aggrieved by the interlocutory order and decree of this Court, filed and entered in the office of the Clerk of this Court on the 9th day of September, 1902, in the above entitled cause, granting a pre-



526 liminary injunction in favor of the complainant, and against the defendant, does hereby appeal therefrom to the United States Circuit Court of Appeals for the Second Circuit, and prays that its appeal may be allowed, and a citation granted, directed to the above named complainant, commanding it to appear before the United States Circuit Court of Appeals, to do and receive what may appertain to justice to be done in the premises, and that a transcript of the pleadings, affidavits, exhibits, evidence, records and proceedings in said cause, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Second Circuit.

527 Dated September 10, 1902.

H. ALBERTUS WEST,  
Solicitor for Defendant.

The proper security for costs having been giving, it is

Ordered, that the foregoing appeal be and the same is hereby allowed.

Dated September 15, 1902.

E. H. LACOMBE,  
U. S. Circuit Judge.

528 (Endorsed)—U. S. Circuit Court, Southern District of New York.—American Graphophone Company, Complainant vs. Universal Talking Machine Mfg. Company, Defendant.—Petition of Appeal.—H. A. West, Solicitor for Defendant.—Copy received Sept. 16, 1902.—Elisha K. Camp, Solr. for Compl't.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 19, 1902.—John A. Shields, Clerk.

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## UNITED STATES CIRCUIT COURT,

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SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Complainant,

vs.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

530

## Assignment of Errors.

And now comes the defendant, and says that in the records and proceedings of the said Court in the above entitled cause, and in the interlocutory order and decree made and entered therein on the 9th day of September, 1902, granting an injunction, there is manifest error, and for error the said defendant assigns the following, upon its appeal from the said interlocutory order, to wit:

531

1. The Court erred in granting a preliminary injunction.
2. The Court erred in holding that there is any proof of infringement, and in not holding the contrary.
3. The Court erred in granting the preliminary injunction in the form and purport thereof, the same being broader than the patent in suit, and broader than any prayer in the bill of complaint.



532 4. The Court erred in not regarding the special matters set up in the answer, in that, among other things, it has not been shown that the defendant has manufactured, "used and sold infringing records without the license and consent of the complainant.

5. The Court erred in that, on motion for preliminary injunction, it construed claims 7, 10, 17 and 18, or some of them, in view of its own understanding of the patent in suit, instead of considering it in connection with prior adjudication and in accordance with the prior art.

533 6. The Court erred in granting a preliminary injunction for that claims 7, 10, 17 and 18 of the patent in suit are void.

7. The Court erred in granting a preliminary injunction for that claims 7, 10, 17 and 18 have never been decreed or held valid in any prior adjudication, but have been practically held to be void.

8. The Court erred in granting a preliminary injunction, in that it has not been shown that the defendant is in any way connected with the practicing of the processes which are alleged to be covered by claims 7, 10, 17 and 18 of the patent in suit.

534 9. The Court erred in granting a preliminary injunction, in that hard disk zig-zag records are not covered by claims 7, 10, 17 and 18 of the patent in suit.

10. The Court erred in granting a preliminary injunction, in that the manufacture, or use, or sale of hard disk zig-zag records is not an infringement of claims 7, 10, 17 and 18 of the patent suit.

11. The Court erred in granting a preliminary injunction, in that it has not been shown that even if the defendant has sold or caused to be sold hard-

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disk zig-zag records, that it is not in proof that the defendant has made any records by cutting or engraving. 535

12. The Court erred in granting a preliminary injunction, for that claims 7, 10, 17 and 18 of the patent in suit do not cover zig-zag sound records.

13. The Court erred in granting a preliminary injunction, for that it has not been shown that claims 7, 10, 17 and 18 of the patent in suit cover any art, machine or manufacture wherein the original wax sound record is not directly used in reproducing the sounds.

14. The Court erred in not holding that the complainant had lost its right to a preliminary injunction, by reasons of its laches in failing to sooner assert its claim, and in failing bring suit, or to notify the defendants of the claim that the use of zig-zag sound records infringe upon the patent in suit. 536

15. The Court erred in assuming that the defendant could not show, by a hearing upon full proofs, that claims 7, 10, 17 and 18 are void, and non-patentable.

16. The Court erred in not denying the motion for preliminary injunction. 537

17. The Court erred in granting a preliminary injunction on a deposition of a witness who did not sign his deposition, and whom the defendant had no opportunity to cross-examine.

Wherefore, and for divers other errors in the record of this cause appearing, the defendant-appellant prays that the interlocutory order appealed from may be reversed and annulled, and that an order be directed to be entered, denying the preliminary injunction asked for by the bill of complaint, and va-



538 eating and setting aside said preliminary injunction.

Dated September 10, 1902.

H. ALBERTUS WEST,  
Solicitor for Defendants.

(Endorsed)—U. S. Circuit Court, Southern District of New York.—American Graphophone Co. *vs.* Universal Talking Machine Manufacturing Company.—Assignment of Errors.—H. A. West, Solicitor for Defendant.—U. S. Circuit Court, Southern District of New York.—Filed Sep. 10, 1902.—John A. Shields, Clerk.

539

At a Stated Term of the Circuit Court of the United States of America, for the Southern District of New York, in the Second Circuit, held at the United States Court Rooms, in the Borough of Manhattan, in the City of New York, on the 18th day of September, in the year of our Lord one thousand nine hundred and two.

Present—The Honorable E. HENRY LACOMBE,  
*Circuit Judge.*

540

AMERICAN GRAPHOPHONE COM-  
PANY

vs.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

It appearing that the above entitled cause has been appealed to the U. S. Circuit Court of Appeals,

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ETUS WEST,  
r Defendants.

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phone Co. *vs.*  
Manufacturing  
s.—H. A. West,  
Circuit Court,  
—Filed Sep. 10,

it is now, on motion of H. A. West, Esq., solr. for 541  
appellant, the Universal Talking Machine Manufac-  
turing Company.

Ordered, that the appellant, in lieu of a bond for  
costs, may deposit with the Clerk of this Court the  
sum of two hundred and fifty (\$250) dollars as se-  
curity for costs,

E. H. LACOMBE,  
U. S. Circuit Judge.

(Endorsed)—U. S. Circuit Court, Southern Dist. of  
N. Y.—American Graphophone Co. *vs.* Univer-  
sal Talking Machine Mfg. Co.—Order.—H. A.  
West, Solr. for Defendant, 68 William St., New  
York City.—U. S. Circuit Court, Southern Dis-  
trict of New York.—Filed Sep. 16, 1902.—John 542  
A. Shields, Clerk.

By the Honorable E. HENRY LACOMBE, one of the  
Judges of the Circuit Court of the United States  
for the Southern District of New York, in the  
Second Circuit, to THE AMERICAN GRAPHOPHONE  
COMPANY, GREETING:

You are hereby cited and admonished to be and  
appear before a United States Circuit Court of  
Appeals for the Second Circuit, to be holden at the  
Borough of Manhattan in the City of New York, in  
the District and Circuit above named, on the 8th 543  
day of October, 1902, pursuant to an appeal filed in  
the Clerk's office of the Circuit Court of the United  
States for the Southern District of New York,  
wherein The Universal Talking Machine Manufac-  
turing Company is appellant and you are appellee,  
to show cause, if any there be, why the interlocu-  
tory order granting an injunction in said appeal  
mentioned should not be corrected and speedy jus-  
tice should not be done in that behalf.

Given under my hand at the Borough of Man-  
hattan, in the City of New York, in the District  
and Circuit above named, this 15th day of Septem-

Circuit Court of  
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ENRY LACOMBE,

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544 ber, in the year of our Lord one thousand nine hundred and two, and of the Independence of these United States the one hundred and twenty-seventh.

E. H. LACOMBE,

Judge of the Circuit Court of the  
United States for the Southern  
District of New York, in the  
Second Circuit.

(Endorsed)--United States Circuit Court of Appeals  
for the Second Circuit.--American Graphophone  
Company *vs.* Universal Talking Machine Manu-  
facturing Company.--Citation.--Copy received  
Sept. 16, 1902. Elisha K. Camp, Solr. for Compl.  
545 --U. S. Circuit Court, Southern District of New  
York.--Filed Sep. 19, 1902.--John A. Shields,  
Clerk.

UNITED STATES OF AMERICA,  
Southern District of New York, } ss.:

I, JOHN A. SHIELDS, Clerk of the Circuit Court of  
the United States of America, for the Southern Dis-  
trict of New York, in the Second Circuit, do hereby  
certify that the foregoing pages, numbered from 1  
to 207 inclusive, contain a true and complete tran-  
script of the record and proceedings had in said  
Court, in the cause entitled The Universal Talking  
Machine Manufacturing Company, Appellant,  
against American Graphophone Company, Appellee,  
546 as the same remain of record and on file in my office.

In testimony whereof, I have caused the seal  
of the said Court to be hereunto affixed, at the City  
of New York, in the Southern District of New York,  
in the Second Circuit, this 21st day of October, in  
the year of our Lord one thousand nine hundred  
and two, and of the Independence of the said  
United States the one hundred and twenty-seventh.

JOHN A. SHIELDS,

[SEAL.]

Clerk.

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## CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

AGAINST

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.

On Patent No.  
341,214.

Sound Records.

548

SIRS:

Please take notice that the exhibits referred to in the within affidavit of George K. Cheney are at my office, number 68 William street, in the Borough of Manhattan, in the City of New York, subject to inspection by you or your solicitor at any reasonable time.

Dated New York, September 24, 1902.

Yours, &amp;c.,

H. A. WEST,  
Solicitor for Defendant.

549

TO THE AMERICAN GRAPHOPHONE COMPANY.



550

IN THE  
CIRCUIT COURT OF THE UNITED STATES  
FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

AGAINST

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Patent No.  
341,214.  
Sound Records.

551

Upon the annexed affidavits of George N. Robinson, John A. MacNabb, and George K. Cheney,  
And upon the order of injunction granted herein, and entered and filed on September 9, 1902,

And upon all the pleadings and proceedings heretofore had herein,

And upon the order herein, entered September 16, 1902, staying the operation of the injunction until the hearing and determination of the appeal taken therefrom by the United States Circuit Court of Appeals,

552

Let the complainant show cause, before me, at a term of this Court, to be held in the United States Post Office Building, in the Borough of Manhattan, in the City of New York, on the first day of October, 1902, at the opening of Court, or so soon thereafter as counsel may be heard, why the defendant herein should not have the following relief—that is to say:

FIRST.—Why the said injunction order of September 9, 1902, should not be modified so that in terms it shall be limited to disc sound records made from or by the engraving process only, and why such modification should not be made *nunc pro tunc*, as of the time and date of such injunction order.



SECOND.—Why, in any event, and until the hearing of the appeal from such injunction order to the United States Circuit Court of Appeals, and the decision thereon, and the entry and service of an order upon such decision, the complainant and its agents should not be enjoined and restrained from advertising such injunction order, or using the same in any way as a method for developing its business, or the business of its agents; and, 453

THIRD.—Why the complainant and its agents should not be compelled to notify the trade, and such customers as it or its selling agents have in any way notified of the injunction order, that the same applies only to disc records made by the engraving process, and that the same is not now in force, and is not operative pending an appeal from such injunction order to the Circuit Court of Appeals; and 554

FOURTH.—Why the defendant should not have such other and further relief as the Court may grant. And in the meantime, and until the hearing and decision of the motion upon this order to show cause, and the due entry and service of an order thereon, let the complainant, and its agents, servants, and employees be restrained from advertising to the trade, or to customers, the injunction aforesaid, except with statement that it has been suspended pending appeal. 555

Sufficient cause appearing therefor, let the service of this order to show cause, and the annexed affidavits upon which it is made, be made upon the complainant or its solicitor herein on or before the 26th day of September, 1902.

Dated, September 23d.

E. HENRY LACOMBE,  
U. S. C. J.



556

IN THE

## CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

AGAINST

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.In Equity.  
On Patent No.  
341,214.  
Sound Records.

557

## Affidavit of John A. MacNabb.

STATE OF NEW YORK, }  
County of New York, } ss.:JOHN A. MACNABB, being first duly sworn, deposes  
and says:

558

I am of lawful age, and the manager of the defendant herein, The Universal Talking Machine Manufacturing Company. I reside in the City of New York. I have been engaged in the manufacture and sale of Talking Machine Records for thirteen years last past. I have been employed in the factory of the American Graphophone Company; also of the National Phonograph Company, the Edison Company; and I was also manager of the Eastern Talking Machine Company, of Boston, Massachusetts, for seven years, where both graphophones and phonographs, and disc talking machines were sold. The American Graphophone Company has only lately become engaged in the disc talking machine business. Up to a few months ago it was engaged wholly in the business of selling machines constructed to reproduce from cylindrical records, which are entirely different from disc records. The disc record

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business was started by the old Gramophone Com- 559  
 pany, which was in substance bought out by the  
 present defendant, The Universal Talking Machine  
 Manufacturing Company, whose manager I am.  
 There is also another company, to wit.: The Victor  
 Talking Machine Company, of Philadelphia, which,  
 with its various branches, is also actively engaged in  
 the manufacture and sale of disc records. The only  
 other manufacturer of any account in the business  
 is the American Graphophone Company, the com-  
 plainant herein, which has only lately, as I have  
 above stated, come into the field, and whose sales  
 thus far of disc records have been comparatively  
 small, as I am informed, compared to those of the  
 other companies. In thus coming into the field 560  
 after others had introduced the disc record upon the  
 market, the American Graphophone Company has  
 to a large extent imitated the methods of business  
 of its competitors, and also to a certain extent, imi-  
 tated the form and manner of preparation and ap-  
 pearance of the records of its competitors already in  
 the field. It thus happens that the disc records  
 made by the American Graphophone Company, and  
 sold by its agent, the Columbia Phonograph Com-  
 pany, are similar in appearance to the earlier disc  
 records in the field, made by the Gramophone Com-  
 pany, and later on made by this defendant, and also  
 made by the Victor Talking Machine Company; not,  
 however, because these latter companies have imi- 561  
 tated the American Graphophone Company, but  
 because the American Graphophone Company, a  
 later rival in the field, has imitated its competitors.  
 Such records can be made by at least three proc-  
 esses, by the etching process, by the displace-  
 ment process, and by the engraving process. As  
 an illustration of this, the exhibits in this  
 case, as I am informed, consist not only of a  
 record made by the engraving process, but also one  
 made by the etching process, and one made by the  
 displacement process. Now, there is no claim made  
 by the complainant that the claims of the patent in

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562 question cover records made either by the displacement process or by the etching process. Nevertheless, these records are all similar; so similar that they can not be distinguished as to process by any ordinary person. Notwithstanding the foregoing facts, the injunction, as it is now worded, reads as follows: "making or causing to be made, using or causing to be used, selling or causing to be sold, any Disc Sound Records, like or similar to those made exhibits in this case."

Inasmuch as all disc records, by whatever process made, must be similar to the exhibits in this case, these words of the injunction, reading them literally, would apparently prevent the defendant from making any sound records, by any process whatever, and the jobber, reading this injunction as it is worded, construes it literally, and to mean that the defendant is absolutely prohibited from making or selling any disc records whatever, by whatever process they are made; and I am informed by the counsel for my company, the defendant, that this was not intended by the Court. Nevertheless, the complainant is taking advantage of the broad terms of this injunction order, and taking pains to inform jobbers and those who ordinarily purchase the disc records from the defendant that they can only purchase any disc records from the defendant at their peril, inasmuch as, under the terms of the injunction order, the defendant 563 can not sell any disc records at all; reading the injunction order, as it is now worded, to these jobbers and customers, as proof of the complainant's statement. This information has come to me from The Blackman Talking Machine Company, of this city; A. D. Matthews & Son, of Brooklyn, and others, who have, however, refused to make affidavits.

564 I have also been given to understand by the counsel for my company that the injunction granted by Judge Lacombe is accompanied also by an order, staying its operation, in case of appeal, until the appeal can be heard and decided by the Circuit Court

of Appeals, matter, for Circuit Court by the Circuit Court is not complainant among the an injunction my company records; and and using the obtaining order which order company. letter from a ter in substance and slip Phonograph he should not company. The exhibits 1, 2 a gram which Company, a Poorman, J also, as Exhibit man, all to Company, a York City, manager of copy of which original of Company. the selling Company; i and whatever and direction pany the co

Sworn to before day of September



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of Appeals, and substantially relegating the whole 565  
matter, for a careful review of the merits, to the  
Circuit Court of Appeals; and until such decision  
by the Circuit Court of Appeals, the injunc-  
tion is not in force. Notwithstanding this, the  
complainant has advertised, and is now advertising,  
among the jobbers to whom my company sells, that  
an injunction has been granted, restraining me and  
my company from manufacturing or selling disc  
records; and that that injunction is now in force;  
and using this plea or statement as a method of ob-  
taining orders from customers for disc records,  
which orders would otherwise be placed with my  
company. For instance, I have this day received a  
letter from a large jobber of Minneapolis, which let- 566  
ter in substance states that a certain inclosed letter-  
head and slip was mailed to him by The Columbia  
Phonograph Company, presumably as a reason why  
he should not place further orders with my com-  
pany. These three exhibits I annex hereto as Ex-  
hibits 1, 2 and 3. I also annex, as Exhibit 4, a tele-  
gram which I received from the Jones Dry Goods  
Company, and, as Exhibit 5, a letter from J. E.  
Poorman, Jr., a large jobber of Cincinnati, Ohio;  
also, as Exhibit 6, a further letter from Mr. Poor-  
man, all to the same effect. The American Trading  
Company, a large exporter, of 25 Broad street, New  
York City, also received a letter from Mr. Lyle, the  
manager of The Columbia Phonograph Company, a 567  
copy of which letter I enclose, as Exhibit 7, and the  
original of which is with the American Trading  
Company. The Columbia Phonograph Company is  
the selling agent of the American Graphophone  
Company; its officers are substantially the same;  
and whatever it does, it does only at the instigation  
and direction of The American Graphophone Com-  
pany the complainant herein.

JOHN C. MACNABB.

Sworn to before me this 22d )  
day of September, 1902. }

LESLIE R. PALMER,  
Notary Public,  
N. Y. Co.



568

**Exhibit No. 1.**

(Copy of printed slip.)

**AN INFRINGER ENJOINED.**

In a suit brought by the American Graphophone Company, in the United States Circuit Court for the Southern District of New York, Judge Lacombe has granted a preliminary injunction against the Universal Talking Machine Manufacturing Company. This company is the successor of the National Gramophone Company, and it has conducted the work of making disc records so secretly that it has been difficult to obtain evidence on which to make out a case of infringement. A previous attempt to secure an injunction failed for lack of evidence, but that fault was cured by bringing the defendant's record maker to book. The result of his examination was that the preliminary injunction was promptly granted.

569

**Exhibit No. 2.**

[Picture of factory.]

570

**COLUMBIA PHONOGRAPH COMPANY,**  
Sole sales agent for the  
**AMERICAN GRAPHOPHONE COMPANY,**  
World's Headquarters for Talking Machines and  
Supplies.

EDWARD D. EASTON, President.

JAY H. WHEELER, Manager.

Telephone Connection.

302 Nicollet Ave., Minneapolis, Minn.  
Factory, American Graphophone Company,  
Bridgeport, Conn.

THOS.  
Wholesale  
Phonographs  
Records and  
234 N. 1st St.

UNIVERSAL  
New  
GENTLEMEN

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**Exhibit No. 3.**

571

(Copy.)

THOS. C. HOUGH,  
Wholesale & Retail,  
Phonographs, Zon-o-phones,  
Records and Supplies,  
234 Nicollet Ave.

MINNEAPOLIS, Minn., Sept. 16, 190—.

UNIVERSAL TALKING MACHINE Co.,  
New York, N. Y.

GENTLEMEN:

572

The enclosed letter head and slip was mailed me by the Columbia Phonograph Co. Is there any foundation to this statement, and will you be in a position to continue to supply us with machines and records?

Some time ago I asked you if it would not be possible for you to give me 60% off on records and Minneapolis delivery. I don't wish you to think that I am dissatisfied with the discounts that I am getting for I am not, but I certainly would like to be in a position to give the Columbia people a hot chase and unless I can get these prices, it will be difficult for me to supply dealers and jobbers, as they are giving 50% off on their records to any firm who is doing a good business. 573

Trusting you will consider this well as to your and our interest and trusting we will receive a favorable reply, I remain,

Yours respectfully,

THOS. C. HOUGH.

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574

**Exhibit No. 4.**

(Copy.)

[Telegram.]

KANSAS CITY, Mo., Sep. 10, 1902.

UNIVERSAL TALKING MACHINE Co.,  
23 East 20th St., New York.

Will injunction interfere with immediate shipment of our orders?

JONES DRY GOODS CO.

575

**Exhibit No. 5.**

(Copy.)

CINCINNATI, O., Sept. 9/02.

J. A. MACNABB, c/o. U. T. M. Mfg. Co.  
New York.

MY DEAR SIR:

This is to advise we are in receipt of advices below from the Columbia Phonograph Co., Chicago, Ills.

576 "We have just received a telegram from our Mr. Easton, stating that Judge Lacombe has granted us a preliminary injunction against the Zonophone Records. Awaiting your immediate advices, we beg to remain,

Yours very truly,

J. E. POORMAN, JR.

UNIVERSAL

GENTLEMAN

In response we quoted from the 8th inst.

"We are because of the fact that our Mr. B. granted Zonophone using quite possibly for your chines."

We beg

AMERICAN

GENTLEMAN

In the company vs. turing C



**Exhibit No. 6.**

(Copy.)

CINCINNATI, O., Sept. 11/02.

UNIVERSAL T. M. MFG. CO.,  
New York.

GENTLEMEN:

In response to your wire of this day I beg to state we quoted from a letter which we had received from the Columbia Phonograph Co. under date of the 8th inst. Paragraph reads as follows:

"We are led to make this proposition, not only because of Mr. Eckhardt's statement, but in view of the fact that we have just received a telegram from our Mr. Easton, stating that Judge Lacombe has granted us a preliminary injunction against the Zonophone Records; Mr. Eckhardt stating you are using quite a few of these Records, and we thought possibly you would be ready now to place an order for your fall stock of Columbia Records and Machines."

We beg to remain,

Yours very truly,

J. E. POORMAN, Jr.

578

**Exhibit No. 7.**

(Copy.)

NEW YORK CITY, Sept. 12/02.

AMERICAN TRADING CO.,  
No. 25 Broad Street,  
City.

GENTLEMEN:

In the suit of the American Graphophone Company vs. the Universal Talking Machine Manufacturing Company in the U. S. Circuit Court for the

579



580 Southern District of New York, Judge Lacombe has just granted a preliminary injunction in the matter of the Zonophone sound records made by that Company. The first motion was denied for want of sufficient proof, but with leave to renew; whereupon we put upon the stand the record maker of the Universal Company and renewed the motion with success.

Yours very truly,  
(Sgd.) MERVIN E. LYLE,  
Manager.

581

IN THE  
CIRCUIT COURT OF THE UNITED STATES  
FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

AGAINST

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity.  
On Patent No.  
341,214.  
Sound Records.

582

**Affidavit of George H. Robinson.**

STATE OF NEW YORK, }  
County of New York, } ss.:

GEORGE H. ROBINSON, being first duly sworn, deposes and says:

I am of lawful age and the president of the defendant herein, The Universal Talking Machine Manufacturing Company. I reside in the City of New York. I am vice-president of the Gorham Manufacturing Company. I also hold many other positions of trust, so that, aside from any moral

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Records.

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ng Machine  
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reasons, I could not afford to be connected with any 583  
business which had as one of its necessary incidents  
the piracy of patents or any patent rights. In this  
matter of manufacturing records and for the pur-  
pose of obtaining information to ascertain whether  
my company, the defendant, was in any way in-  
fringing upon the lawful rights of the complainant,  
I have taken advice from a number of counsel, who,  
I have been informed, were counsel learned in the  
law, and able and capable in the premises, and I  
have been advised by them that, as to the engraving  
process of manufacturing records, so far as the same  
is covered by the claims of the patent in suit, it was  
anticipated by prior patents, and that therefore the  
claims of the patent in suit, as to such process, 584  
could not be sustained. I have been further in-  
formed that, in any event, the claims of the patent  
in suit do not cover records made by any other  
process than the engraving process; that is to say  
do not cover records made by the etching process,  
or by the displacement process; and I have been  
advised by counsel that, in any event, whatever be  
the result of this particular suit, our company can  
not be prevented from making disc records by the  
etching process, or by the displacement process. I  
have been informed that the exhibits already in this  
case consist not only of a record made by the en-  
graving process, but also one made by the etching  
process, and one made by the displacement process. 585  
Further than that, I know that all disc sound  
records, by whatever process made, must be similar  
in appearance. My attention has nevertheless been  
called to the wording of the order of injunction  
granted herein, as follows:

"Making or causing to be made, using or caus-  
ing to be used, selling or causing to be sold, any  
disc sound record, like or similar to those made  
exhibits in this case."

To me, not a lawyer, and interpreting these words  
literally this would appear to enjoin my company



586 from making or selling any disc sound record  
 whatever. I am told by my counsel that in this  
 I am deceived; that the language refers only to  
 records made by the engraving process. Notwith-  
 standing this, I can easily understand why our  
 customers construe it otherwise, and construe  
 it as meaning that we cannot sell them any disc  
 records at all; and I am informed that complainant  
 is taking advantage of this wording of the order, and  
 advertising throughout the country to jobbers and  
 customers that these words prevent us from selling  
 them any disc records. This does not seem to me fair  
 under any circumstances. Therefore, in behalf of the  
 defendant, I respectfully request the Court to modify  
 587 the words of this injunction, so that they will refer  
 specifically only to records made by the engraving  
 process. The matter should be stopped at once, as  
 it tends to injure the business of my company, the  
 defendant; and in behalf of the defendant, there-  
 fore, instead of having the usual notice of motion  
 made, I ask for an order requiring the complainant  
 to show cause why it should not be at once re-  
 strained from advertising this injunction order, as  
 preventing the defendant from selling records, or as  
 being now in force; and why, in order to undo the  
 injury it has already caused defendant, the com-  
 plainant, and its selling agent, the Columbia Phonog-  
 588 graph Company, should not be compelled to notify  
 the trade, and especially those jobbers and customers  
 to whom it, or its agents, have sent notice of the in-  
 junction, that the injunction applies only to records  
 made from or by the engraving process; and also  
 that the injunction is not now in force, and will not  
 be until the Circuit Court of Appeals has passed  
 upon it, and not then unless the Circuit Court of  
 Appeals sustains it, for which order to show cause  
 no other or previous application has been made; and  
 also that, in the meantime, and until the motion  
 upon this order to show cause can be heard, that the  
 complainant and its agents, including the Columbia  
 Phonograph Company, be restrained from further

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advertising the injunction, or further making use of 589  
 the same, directly or indirectly, as a means  
 for increasing its business. In this connection I  
 state that the defendant is a large concern, having  
 a large factory, with many employees, having a  
 laboratory, and having salesrooms and offices, and  
 that its business is large, and, so far as I am in-  
 formed, is much larger, as to disc records, than  
 that of the complainant. As explained in the an-  
 nexed affidavit of Mr. McNabb, the complainant has  
 only lately entered the field, coming in as a late  
 arrival, after disc records had been made and sold  
 for a number of years by others, and, it seems to  
 me, is seeking to take advantage of the business  
 and demand created by the expenditures and labor 590  
 of those who had already been in the field for some  
 time.

GEORGE H. ROBINSON.

Sworn to before me this 22d }  
 day of September, 1902. }

LESLIE R. PALMER,  
 Notary Public,  
 N. Y. Co.



592

IN THE

## CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

AGAINST

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.In Equity.  
On Patent No.  
341,214.  
Sound Records.

593

## Affidavit of George K. Cheney

STATE OF NEW YORK, }  
County of New York, } ss.:GEORGE K. CHENEY, being duly sworn, deposes  
and says:

594

I have charge of the laboratory, Number 152 East Twenty-third street, in which the records sold by the defendant herein, The Universal Talking Machine Manufacturing Company, are made. I have manufactured records for a long time, and consider myself to be an expert manufacturer of commercial disc records. I am told that the wording of the injunction herein is apparently to restrain the defendant from manufacturing or selling any disc records similar in appearance to those introduced as exhibits in this case. I state, as an expert manufacturer of disc records, that it is absolutely impossible to produce flat disc records, by any process whatever, which will not be similar in appearance to those already introduced as exhibits in this case; or, inasmuch as I may not be conversant with all of the exhibits introduced in evidence in this case, similar in appearance to records produced by the engraving process. In illustration of this state-



ment, I have produced three commercial records; 595  
 the one marked "Exhibit 1," with my initials, made  
 from a matrix made by me by means of the engrav-  
 ing process; another, marked by me "Exhibit 2,"  
 with my initials, made from a matrix made by me  
 by the displacement process; the third, marked by  
 me "Exhibit 3," with my initials, made from a  
 matrix manufactured by the etching process. These  
 three exhibits are so similar in appearance that it  
 would be absolutely impossible for the ordinary  
 person to distinguish by which process each one  
 was made, and I do not believe that an expert could  
 distinguish.

GEO. K. CHENEY.

Sworn to before me this 22d }  
 day of September, 1902. }

596

LESLIE R. PALMER,  
 Notary Public,  
 N. Y. Co.

(Endorsed)—U. S. Circuit Court, Southern Dist. N.  
 Y.—American Graphophone Company vs. Uni-  
 versal Talking Machine Manufacturing Com-  
 pany.—Order to show Cause and Affidavits.—  
 H. A. West, Solicitor for Defendant, 68 William  
 Street, New York.—Copy received Sept 26,  
 1902. Elisha K. Camp, Solr. for Complts.—U.  
 S. Circuit Court.—Filed Oct. 25, 1902, *nunc pro*  
*tunc* as of Sept. 9, 1902.—John A. Shields, Clerk.

597



598

IN THE

## CIRCUIT COURT OF THE UNITED STATES

FOR THE SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE COM-  
PANY

VS.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

599

**Affidavit for Complainant sur Defendant's Order  
to Show Cause.**

STATE OF NEW YORK, }  
City and County of New York, } ss.:

EDWARD D. EASTON, being first duly sworn, deposes and says: I am president of American Graphophone Company, complainant herein. I am likewise president of the Columbia Phonograph companies, complainant's selling agents. I am general manager of all the said companies, and have charge of the general conduct thereof.

On September 8, 1902, I was informed of the opinion handed down by his Honor Judge Lacombe (dated Sept. 3, 1902), and was showed a copy of the same. I thereupon prepared a letter to the offices of my companies, of which I annex hereto a copy as Easton Exhibit 1.

I sent out no further letters on the matter, until on September 26, 1902, when our associate patent counsel advised me of the order to show cause which had just been served upon him. He handed me a copy of the same, and I thereupon prepared a second letter to the offices, of which I annex a copy



identified as Easton Exhibit 2. These two letters 601  
are the only two issued by me or by my order; and  
so far as I know no letters were sent out from our  
various offices except immediately after receipt of  
my first letter of September 8 and pursuant to said  
letter.

The American Graphophone Company has ex-  
pended large sums of money in developing and in-  
creasing the disc record business, and produces and  
sells disc records in great quantities, its present  
capacity approximating thirty thousand (30,000)  
records a day.

EDWARD D. EASTON.

Subscribed and sworn to }  
before me this 6th day } 602  
of October, 1902.

ARTHUR E. KANEFUST,  
Notary Public,  
Kings Co.  
Certif. filed in N. Y. Co.

Copy received this 6th day of October, 1902.

H. A. WEST,  
Solicitor for Defendants.

---

**Easton Exhibit No. 1.**

SEPTEMBER 8, 1902. 603

TO THE OFFICES,

DEAR SIR:

In the suit of the American Graphophone Com-  
pany vs. The Universal Talking Machine Manufac-  
turing Company in the U. S. Circuit Court for the  
Southern District of New York, Judge Lacombe has  
just entered a preliminary injunction in the matter of  
the Zonophone sound records made by that Company.  
The first motion was denied for want of sufficient  
proof but with leave to renew; whereupon we put



604 upon the stand the record maker of the Universal Company and renewed the motion with success.

Ten days are granted the Universal Company in which to perfect the appeal. If they appeal, the operation of the injunction will be stayed until the decision of the Court of Appeals.

This should require only a very short time as the matter would be made special by the Court of Appeals.

Yours truly,

E. D. EASTON,

Ede—G.

President.

605

**Easton Exhibit No. 2.**

SEPTEMBER 26, 1902.

TO THE OFFICES,

DEAR SIR:—

Please take notice that in our suit against the Universal Talking Machine Manufacturing Company we are directed by the Court not to advertise to the trade or to customers the injunction granted, except with the statement that it has been suspended pending appeal.

Yours truly,

E. D. EASTON,

President.

606

(Endorsed)—U. S. Circuit Court, S. D. N. Y.—  
Amer. Graph. Co. vs. Univ. T. M. Mfg. Co.—In  
Equity.—Easton Affidavit *sur* Order to Show  
Cause.—Elisha K. Camp, Sol. for Complainant,  
277 B'way, New York.—U. S. Circuit Court.—  
Filed Oct. 25, 1902, *nunc pro tunc* as of Sept.  
9, 1902.—John A. Shields, Clerk.



## UNITED STATES CIRCUIT COURT

607

SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE  
COMPANY,  
Complainant,

VS.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY,  
Defendant.

608

Inasmuch as injunction is suspended on appeal,  
and such appeal is entitled to a preference, and, if  
defendant has been diligent, can soon be heard,  
motion is denied, except to the extent already in-  
dicated in the order to show cause.

October 25, 1902.

(Signed)

E. H. LACOMBE.  
U. S. C. J.

609



610

At a Stated Term of the Circuit Court of the United States for the Southern District of New York, held in the Court Room thereof, in the Post Office Building, in the Borough of Manhattan and City of New York, this 31st day of October, 1902.

Present—Hon. E. HENRY LACOMBE,  
U. S. Circuit Judge.

611

AMERICAN GRAPHOPHONE COM-  
PANY

vs.

UNIVERSAL TALKING MACHINE  
MANUFACTURING COMPANY.

In Equity  
(Sound records).

### Order.

612

This cause coming on to be heard October 24, 1902, upon defendant's motion to modify the injunction order entered against it on September 9, 1902, and to restrain complainant's advertisement of the same, and upon defendant's order to show cause and *ex parte* restraining order granted September 23, 1902 (whereby complainant and its agents, servants and employees were restrained from advertising to the trade or customers the injunction aforesaid, except with the statement that the same has been suspended pending appeal), and affidavits having been read and counsel heard on each side, and the Court being fully advised in the premises; it is now

Ordered, that—except to the extent already indicated in the said *ex parte* restraining order—the said motions be and they are hereby denied.

It IS FURTHER ORDERED that the motion papers



herein be filed *nunc pro tunc* as of the date of the said injunction order of September 9, 1902. 613

E. HENRY LACOMBE,  
U. S. Circuit Judge.

Approved as to form.

ELISHA K. CAMP,  
Solr for Compl't.

H. A. WEST,  
Solr. for Deft.

(Endorsed)—U. S. Circuit Court, Southern District of New York.—American Graphophone Company, Complainant, *vs.* Universal Talking Machine Manufacturing Company, Defendant.—Order.—H. A. West, Solicitor for Defendant, No. 68 William Street, New York, N. Y.—U. S. Circuit Court, Southern District of New York. 614  
—Filed Nov. 1, 1902. *nunc pro tunc* as of Sept. 9, 1902.—John A. Shields, Clerk.

UNITED STATES OF AMERICA, }  
Southern District of New York, } ss.:

I, JOHN A. SHIELDS, Clerk of the Circuit Court of the United States of America for the Southern District of New York, in the Second Circuit, do hereby certify that the foregoing pages, numbered from one to 28, inclusive, contain a true and complete transcript of the additional affidavits and order had in said Court in the cause entitled The American Graphophone Company, Compl't.-Appellee, against The Universal Talking Machine Manufacturing Company, Deft.-Appellant, as the same remain of record and on file in my office. 615

In testimony whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this 5th day of November, in the year of our Lord One thousand eight hundred and Ninety-two, and of the Independence of the said United States the one hundred and twenty-seventh.

JOHN A. SHIELDS,  
Clerk.

[SEAL.]

[H9702]



1768

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# U. S. Circuit Court,

SOUTHERN DISTRICT OF NEW YORK.

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AMERICAN GRAPHOPHONE COMPANY

vs.

UNIVERSAL TALKING MACHINE MANUFACT-  
URING CO.

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DEFENDANT'S-APPELLANT'S DOCUMENT-  
ARY EXHIBITS.

---

H. A. WEST,

*Solicitor for Defendant-Appellant,*

68 William Street,

Manhattan, N. Y.

---

B. H. TYRREL, PRINTER, 129-133 FULTON STREET.



H. A. W.

**Defendant's Exhibit 3.**

[VIGNETTE.]

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A. D. 1878. 24th April. No. 1644.

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Recording and Reproducing Sounds.

---

LETTERS PATENT to Thomas Alva Edison, of Menlo Park, in the State of New Jersey, United States of America, for the Invention of "IMPROVEMENTS IN MEANS FOR RECORDING SOUNDS, AND IN REPRODUCING SUCH SOUNDS FROM SUCH RECORD."

Sealed the 6th August, 1878, and dated the 24th April, 1878.

---

PROVISIONAL SPECIFICATION left by the said Thomas Alva Edison at the Office of the Commissioners of Patents on the 24th April, 1878.

THOMAS ALVA EDISON, of Menlo Park, in the State of New Jersey, United States of America. "IMPROVEMENTS IN MEANS FOR RECORDING SOUNDS, AND IN REPRODUCING SUCH SOUNDS FROM SUCH RECORD."

My present improvements are for more fully developing and perfecting the device heretofore invented by me, and known as the "phonograph."

By extensive experiment and research I have been enabled to obtain very perfect articulation and to produce a record in a convenient form for preservation.

The sound vibrations are made to move a point that by



preference is a diamond or other very hard substance and of a peculiar shape. The sound vibrations in the atmosphere act upon a diaphragm or other body capable of motion, and the same moves the indenting point, and acts as a phonograph. The indented material is properly designated a phonogram, and it is preferably metallic. Sometimes tinfoil is used upon a grooved surface; sometimes a thin sheet or leaf of metal is placed upon a piece of paper having a surface of paraffin or similar material.

Sometimes the metallic surface is copper, and where a matrix has been made of steel or iron by electrotype deposit, or otherwise, upon the phonogram it may be hardened and used for impressing a sheet or roller of metal, and thereby the original phonogram can be reproduced indefinitely in metal that may be hardened and used for any reasonable length of time to utter the sentence, or words, or sounds phonetically.

The instrument or portion of the instrument that reproduces the sound from the phonogram I term a "phonet."

In order to facilitate production, use, and preservation of the phonograms I employ a ring or margin of thick paper or pasteboard, caused to adhere to the foil or sheet by resinous substance; this is used as a gauge in placing the sheet in the instrument or replacing the same in the phonet. I find that a disc revolved by gearing and a weight or spring, and the movement regulated by a fan or governor, is a convenient device for presenting the surface to be indented to the phonograph, and the phonograph is on an arm that swings towards and from the centre of the disc, and is guided by grooves or other convenient mechanism.

The phonet device takes the place of the phonograph device when the sounds are to be reproduced.

When the sheet of material is wrapped around a cylinder its edges are passed down into a slit and held firmly. Either the cylinder may be moved endwise by a screw, or the phonograph or phonet devices be moved along the cylinder, and where the same sound is to be reproduced periodically, as calling out the hours of the day in a clock, or reproducing the sounds of animals in toys,



the phonet is to be brought to the place of beginning automatically.

The phonographic devices employed by me are preferably a diaphragm of metal, against which the sound vibrations act. Sections of rubber tube applied to the surface act as dampers to prevent false vibrations; pieces of felt or similar yielding material may be used for the same purpose, and a small delicate hoop of spring metal between the diaphragm and the indenting point renders the phonogram more perfect than it would be if the diaphragm acted upon the point direct. A similar effect is produced by a disc upon the arm that carries the point, said disc being so close to the diaphragm that the atmosphere will produce the vibrations.

It is often advantageous to use a case between the mouth of the speaker and the diaphragm to gather or hold the sound, and in some instances the head of the speaker should be inserted into this case, up through a hole in the bottom. The mouth-piece is sometimes slotted or perforated, and has irregular edges to reinforce the hissing sounds, and sometimes a membrane of rubber or gutta percha is fitted to the teeth, and forms a bag between the lips and the diaphragm.

The disc upon the arm that carries the point as afore-said may be acted upon by a magnet, and the current through a helix from a diaphragm, or the motion of the arm and points may serve to set up a secondary current through such helix in consequence of the motion given by the phonogram to the point. The arm carrying the point in this latter case should be magnetised.

The phonogram may be produced by the direct action of air concentrated to the spot by a funnel terminating with a small hole, the end of the funnel being almost in contact with the moving surface to be indented.

When the foil is perforated instead of indented it can be rolled up in the form of a horn or cylinder, and revolved, and the articulation result from air blown from the end of a small tube passing through the perforations as they are presented in succession.

Leverage is sometimes employed between the diaphragm and the phonogram, either to lessen or increase the



motion of the phonographic action in recording, or of the phonetic action in speaking, and for recording quartette, trio, and other characters of singing, two, three, four, or more phonographic devices are employed upon one cylinder or plate, and the sounds will be reproduced by corresponding phonets; or where singing is conveyed through tubes to one diaphragm the phonographic record will be the combined tones, and the reproduction by the phonet will be complete and correct.

I find that an arm at right angles to a diaphragm, with a point resting upon the phonogram, will reproduce the tones by the weight and leverage of the arm moving the diaphragm.

The phonogram may be in the form of a disc, a sheet, an endless belt, a cylinder, a roller, or a belt, or strip, and the marks are to be either in straight lines, spiral, zig-zag, or in any other convenient form, so long as the apparatus is adapted to bringing the same into contact with the phonet or speaking part of the apparatus, and the reproduction of the phonogram from a matrix or copy in relief of an original phonogram may be made upon a belt, roller, cylinder, plate, or other convenient surface.

For amusement and instruction this phonograph is capable of extended use. For instance, a revolving cylinder containing phonograms of the letters of the alphabet and phonet keys, with corresponding letters on them, can be used in teaching the alphabet; and phonogram sentences, speeches and other matters can be spoken by the phonet and repeated by the learner without the eyesight being called into use.

For amusement or instruction the phonogram can be of a dog's bark, a rooster's crow, a bird's song, a horse's neigh, a lion's roar, and the like, and the phonogram can be used in a toy animal with a single phonet for the reproduction of the original sound.

This phonograph or speaking machine applied to a mask produces a semblance of vitality if the phonogram is made to operate upon moveable lips by levers, and in the production of such a phonogram a portion of the surface is to be indented by delicate levers and points, receiv-



ing motion from the lips during articulation; thereby a correct reproduction of the motion of the lips is obtained.

In connection with the phonet it is important to avoid the sound that usually results from the rubbing action of the phonogram upon the point. I am enabled to prevent this by an electric action between the point and the phonogram. In this case the phonogram should be of iron and the point of steel and the parts magnetized so as to slightly repel each other; the point will follow the undulations and reproduce the sounds by the phonet.

It is important that the point used in the phonet correspond in shape to that of the phonograph, but slightly smaller, so as to follow the bottom of the depressions without contact upon the sides.

The diaphragm or other body employed in the phonet to receive motion from the phonogram is connected with a funnel of paper or other resonant substance that acts as a sounding board to render the phonet louder and more distinct.

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SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Thomas Alva Edison in the Great Seal Patent Office on the 22nd October, 1878.

THOMAS ALVA EDISON, of Menlo Park, in the State of New Jersey, United States of America. "IMPROVEMENTS IN MEANS FOR RECORDING SOUNDS, AND IN REPRODUCING SUCH SOUNDS FROM SUCH RECORD."

This Invention consists in means for recording in permanent characters the sounds made by the human voice in speaking and singing, those made by musical instruments, birds, animals, or any sound whatever, and in means for reproducing those sounds at any desired time.

The sound vibrations act upon a diaphragm or other body capable of motion; this diaphragm is at the back of a chamber provided with an opening or mouth-piece, and to this diaphragm an indenting point is secured. This instrument I term a "phonograph." The phonograph is



adjusted to position with its indenting point contiguous to a moving surface covered with a thin sheet of metal foil or other suitable material, or else the surface with the metal foil is stationary, and the phonograph movable.

The surface upon which the metal foil is secured is by preference grooved spirally, and this indenting point indents the foil in the line of this groove as the diaphragm is moved back and forth by the sound vibrations; these indentations are a record of the sound waves, and form the characters for reproducing the sounds. This indented sheet I term a "phonogram."

The instrument or portion of the instrument that reproduces the sound from the phonogram I term a "phonet." It is similar in construction to the phonograph, being provided with a diaphragm and point, but the mouth-piece is by preference funnel-shaped to render the sound loud and distinct. The sounds are reproduced by the phonet being adjusted to place so that the point of its diaphragm is at the beginning of the spiral line of indentations, and as the surface containing the indented foil is moved the diaphragm of the phonet is vibrated by the point passing from one indentation to the next, hence the diaphragm receives the same movement from the indentations as when making those indentations, consequently the sounds made by the phonet will be the same as those that operated upon the diaphragm of the phonograph.

In the Drawing Fig. 1 is a section of the phonograph and sectional elevation of the mechanism for presenting the surface to be indented, and Fig. 2 is a plan of the same.

The phonograph is made of the body portion *a*, diaphragm *b* and indenting point *c*. The body portion *a* has a central opening forming the mouth-piece into which the person speaks, or through which opening the sound vibrations pass to act upon the diaphragm, and the diaphragm is secured at its edges to the body *a*, leaving a space between the body and diaphragm in order that the diaphragm may vibrate freely. The indenting point should be a diamond or other very hard substance.

The diaphragm is made of a thin sheet of iron or other material, and it is preferable to place the indenting point



upon a delicate spring arm  $e^2$ , and to employ a short piece of rubber tubing  $e^3$  between the spring and diaphragm; this rubber acts as a damper to prevent false vibrations of the diaphragm.

The phonograph is upon a lever arm  $i$  pivoted at 5 to the vertical stud 6, so that the phonograph may be raised or lowered vertically or moved horizontally for a purpose hereafter explained.

It is now to be understood that if a person speaks with his mouth near the mouth-piece of the phonograph the sound vibrations will act upon the diaphragm, and vibrate it, and communicate to the indenting point a similar movement, and that if a piece of metal foil or other material susceptible of being indented is placed beneath or behind the indenting point and caused to move regularly or the indenting point moved over the material; that said material will be indented and form a perfect record of the sound vibrations.

I will now describe the means for sustaining the sheet to be indented, and the mechanism for moving the same:  $d$  is a disk or plate secured to and turning with the shaft  $e$ , and hinged to this disk is a ring frame  $f$ ; this disk  $d$  has two spiral grooves 3, 4, in its surface. There are pins 2, 2, upon the surface of the disk, and holes at corresponding places in the ring frame; the sheet to be indented is of a size and shape to correspond with that of the disk  $d$  and frame  $f$ , and said sheet has holes in it corresponding to the position of the pins 2, 2, and these holes form register marks in placing or replacing the sheet upon the disk  $d$ , and after the sheet is so placed the ring frame  $f$  is brought down upon the sheet and holds it firmly in place. There may be a central opening in the indented sheet of a size slightly larger than the space occupied by the spiral 3, and the outer edges of the sheet are stiffened by a ring of thick paper or pasteboard caused to adhere by glue or other adhesive material. The surface of the disk  $d$  is made with two spiral grooves 3 and 4 as aforesaid; the groove 3 is a guide for a pin that is upon an arm  $g$  on the phonograph, and the groove 4 is for the indenting point  $c$ . As the disk and sheet are revolved the groove 3 causes the indenting point to occupy a position immediately over the line of



the spiral 4, and the indentations will be made upon the sheet of foil in a line corresponding to that of the spiral 4, shown in Fig. 2. The indentations made in the foil are a complete record of the sound vibrations that acted upon the diaphragm *b*, and from this indented sheet, which I term a "phonogram," the sounds are reproduced. The phonograph is carried outwardly by the spiral 3, and in so doing the parts swing upon the vertical stud 6. By depressing the outer end of the lever *i* the phonograph is raised so that it can be swung aside from the disk *d* to allow of the ring frame *f* being thrown back and the indented sheet or "phonogram" removed from the disk.

The shaft *e* is revolved by a weight, or spring, and gearing at *h*, and the spring is wound up by moving the lever *k* back and forth, which acts upon a ratchet and pawl of ordinary construction; *l* is a lever provided at its outer end with an inclined groove, in which is a pin on the lever *m*, and the other end of this lever *m* is connected with a coupler *m*<sup>1</sup> by moving the lever *l* one way or the other, the shaft *e* will be connected to or disconnected from the gearing *h*, and hence the disk *d* stopped or started at pleasure without interfering with the motor.

As it is necessary that the shaft *e* should be revolved with uniformity I provide a governor at *n* to prevent the apparatus revolving too rapidly; and this may be made as in Figs. 1, 3, & 4, in which there are metal blocks *o* at the ends of spring arms from a cross head on a shaft that is driven by the gearing *h*, said blocks swinging radially and acting against the interior of a stationary cylinder *p* if the speed becomes too great, thereby checking the speed by the friction of the blocks against the cylinder. These spring arms may be secured at one end to a prismatic block as shown in Fig. 5. It is preferable to cover the surface of the blocks *o* next the cylinder *p* with felt or similar material that will slide upon the interior surface of the cylinder *p*, but produce more or less friction, according to the centrifugal action.

The guide spiral 3 may be dispensed with, and either of the devices shown in Figs. 6, 7, 8, or 9, made use of.

In Figs. 6 and 7 the shaft *e* projects above the surface of the disk *d*, and there is a tooth upon the shaft contigu-



ous to a rack bar extending from the phonograph, hence each revolution of the shaft, the rack bar, and phonograph will be moved the space of one tooth, consequently the lines of indentations will be parallel and concentric to the shaft  $e$ , excepting at the places when the tooth acts to move the rack bar and phonograph outward or inward. In this case the spiral grooves are cut to correspond to the feed.

In Fig. 8 a worm upon the shaft  $e$  acts upon a worm pinion to revolve the shaft  $e^5$ , and the worm at the other end of this shaft  $e^5$  acts upon teeth around the base of the lever  $i$  on the stud 6. By this device the phonograph will be moved outward gradually, and the line of indentations will be in a spiral corresponding to the continuous spiral groove in the plate  $d$ .

In Fig. 9 the shaft  $e$  is made with a fusee at  $p^1$ , and one end of a swinging arm connected to the phonograph takes against the same. The spirals of the fusee gradually move outward the phonograph, as the disk and shaft are revolved, and the line of indentations will be spirally the same as that made by the spiral 3.

In Fig. 10 the shaft  $e$  is provided with a screw pinion meshing with teeth upon a cam wheel 7. This gives the same movement to the phonograph as the spiral groove 3.

In Fig. 11 the guide groove 3 for the arm and pin  $g$  is upon a disk  $d^1$  upon the shaft  $e$ , but the groove 3 occupies the same relative position upon the disk  $d^1$  as the groove 4 upon the disk  $d$ , so that the phonograph is moved outwardly by the groove of the disk  $d^1$ , swinging both the arms  $g$  and  $i$  upon the vertical pivot 6.

Instead of the sheet of metal foil being upon the disk  $d$  it may be wrapped upon a cylinder  $q$ , as in Fig. 12. In this case the cylinder is upon a shaft  $e^1$  revolved by the gearing at  $h^1$ , and upon said shaft there is a right and left hand screw at  $k^1$ , and there is a corresponding double spiral groove in the surface of the cylinder  $q$ . The phonograph is secured to a sliding shaft  $l^1$ , and said shaft is moved endwise back and forth by the screw  $k^1$  acting upon an arm  $m^2$  that is secured to the said shaft  $l^1$ . As the phonograph is moved in one direction the line of in-



dentations is made spirally in the foil on the cylinder  $q$ , and when the arm  $m^2$  reaches the end of the screw it will be moved in the other direction by the reverse screw thread, and the phonograph will make a second spiral line of indentations that will cross the first spiral line. This feature is especially available for a phonet where the surface of the cylinder  $q$  is formed of an electrotype or other copy of the phonogram, so that the words or sounds may be reproduced automatically and at intervals if desired.

It is preferable to make use of a thin metal plate  $n^2$ , see Figs. 13 and 14, pivoted at one end and fitting within a longitudinal groove in the surface of the cylinder  $q$  for securing the edges of the metal foil and holding it securely upon said cylinder. The top of this plate  $n^2$  is flush with the surface of the cylinder, and grooved to correspond with the grooves in the cylinder, so as not to interfere with the indenting point. A wire may replace this device, such wire being secured by arms at each end of the cylinder, and raised and lowered in and out of the groove by a cam or otherwise. I find that an interruption of one-eighth of an inch space where there is no recording is not detected by the ear.

The apparatus shown in Figs. 13 and 14 is similar to that shown in Fig. 12, except that the phonograph is stationary and the cylinder moves horizontally, and the shaft  $e^1$  is only provided with a screw thread in one direction, hence the cylinder will have to be moved back by hand to bring it to place if desired to reproduce the sounds from the phonogram, or to position the phonograph if a new sheet of foil is to be indented after the first one has been removed. This is readily accomplished by raising the arm  $o^1$  and its tooth from the screw  $k^1$ , which leaves the shaft  $e^1$  and cylinder free to be moved back and forth.

In Fig. 15 the phonograph is fitted to move horizontally instead of the cylinder  $q$ , as in Fig. 12, but the shaft  $e^1$  is provided with a screw thread in one direction only, hence the phonograph has to be positioned by hand after the arm  $o^1$  has been raised from the screw  $k^1$ .

In Figs. 12 and 15 the phonograph can swing upon the shaft  $l^1$  to raise the indenting point from the cylinder  $q$ , and allow for the removal or insertion of a sheet of foil,



and there is a stop at 8 for adjusting the position of the phonograph when brought down to indent the foil.

In Figs. 13 and 14 the phonograph is upon an arm pivoted at 9, so that it can be swung horizontally away from the cylinder *q* for the purpose aforesaid, and the adjustable stop 8 is also provided.

Thus far I have described the "phonograph" or instrument upon which the sound vibrations act, and which instrument acts to indent the sheet of foil and produce the "phonogram" or record of such sound vibrations.

Mechanism has also been described for presenting the sheet of foil to be indented by the phonograph.

I will now describe how the sounds are reproduced from the phonogram.

If it is desired to reproduce the sounds from the phonogram in the same instrument in which the phonogram was produced it is only necessary that the indenting point *c* be made to traverse the line of indentations in the phonogram, and that a funnel-shaped mouth-piece, shown by dotted lines in Fig. 1, be added to the phonograph to aid in increasing the loudness and distinctness of the sound. The instrument in this form I term a "phonet."

In the instrument shown in Figs. 1, 2, 6, 7, 8, 9, 10, 11, 13, 14, and 15, the phonet requires to be positioned by hand, as before explained, in order that the point *c* may be placed at the beginning of the spiral line of indentations. As the point *c* passes from one indentation to the next, either by the foil being moved beneath said point, as in Figs. 1, 2, 6, 7, 8, 9, 10, 11, 13, and 14, or by the point moving over the foil, as in Figs. 12 and 15, the diaphragm *b* receives a movement corresponding to the depth of the indentations, and corresponding also with the same movement it received from the sound vibrations when making those indentations, hence air waves will be produced by the movement of the diaphragm that will make sounds by passing through the mouth-piece of the phonet that will be exactly the same as the sounds that acted upon the diaphragm of the phonograph.

The material upon which the record is made may be of metal foil, such as tin, iron, copper, lead, zinc, cadmium, or a foil made of composition of metals.



Paper or other materials may be used, the same being coated with parafine or other hydrocarbons, waxes, gums, or lacs, and the sheet so prepared may itself be indented, or the material, say paper, may be made to pass through a bath of hot parafine and thence between scrapers. Thin metal foil is now placed on the material, and the sheet passed through rollers, which give it a beautiful smooth surface. The indentation can now be made in the foil, and the parafine or similar material, and the indenting point, does not become clogged with the parafine in consequence of the intervening foil.

If the copper foil, or tin foil with copper surface is used, and a matrix of iron or steel made by electotype deposit or otherwise upon the phonogram, such matrix may be hardened and used for impressing a sheet or roller of metal as hereafter mentioned; thereby the original phonogram can be reproduced indefinitely in metal that may be hardened and used for any reasonable length of time to utter the sentence or words or sounds phonetically.

I will now briefly describe some modifications in the construction and operation of the phonograph and phonet.

In Fig. 16 the indenting point  $c$  is upon a spring arm  $e^2$ , as in Figs. 1 and 2, but there are short sections of rubber tube  $e^3$  at each side of the diaphragm  $b$  to dampen the diaphragm and prevent false vibrations.

In Fig. 17, the rubber of the diaphragm acts against the outer end of the arm  $e^2$  to increase the leverage and lessen the depth of indentations in the foil and allow of the record being made in less yielding material than tin foil.

Fig. 18 shows a modification of the last-mentioned device, the pressure being applied to the arm  $e^2$  between the indenting point and the support for the arm so as to increase the depth of the indentations.

Fig. 19 shows the arm  $e^2$  made as a lever with a spring.

Fig. 20 shows the indenting point upon the centre of a spring bar that is firmly held at each end; the bar is connected at its centre to the diaphragm  $b$  by a string or otherwise.

Fig. 21 represents the diaphragm  $b$  as of concave form instead of flat.



Fig. 22 shows the indenting point upon a spring secured to the diaphragm.

Fig. 23 shows a disk upon the spring  $e^2$  of the indenting point; this disk is placed quite close to the diaphragm and is moved by the air as the diaphragm is vibrated, the disk being so close to the diaphragm that the two will vibrate together, as air cannot pass between or escape as rapidly as the vibrations take place.

Fig. 24 shows the diaphragm vibrated by electro-magnetism; in this case the diaphragm is to be of iron, and the power of the electro-magnet will be varied by a rise and fall of electric current passing through the helix of the electro-magnet; this rise and fall of electric tension is to be produced by the action of sound upon a diaphragm and connections in an electric circuit.

Fig. 25 shows the method of vibrating the indenting spring and point by the direct action of an electro-magnet without the use of a diaphragm, the electric tension in the helix being varied by sound vibrations upon a diaphragm.

Fig. 26 shows the spring arm  $e^2$  connected to one end of a permanent magnet so as to highly magnetize the reproducing point; the foil should be of iron. When the point passes an indentation there will be less attraction than when passing no indentation; this will give good articulation free from the scraping noise of the point on the foil, for in this case it does not touch the foil, but is worked by magnetic attraction.

Fig. 27 represents two instruments in connection with the cylinder  $q$ ; in this case the phonet and the phonograph are separate. The phonograph records in the usual manner, but the phonet has its diaphragm set in motion by the rise and fall of the lever  $e^2$ . This reduces the scraping noise of the foil and acts by leverage, and a slight tension to move the diaphragm as the phonogram is moved beneath the point  $c$ .

Fig. 28 shows an arrangement whereby four persons may speak simultaneously and have records made in separate parallel lines upon one cylinder, and the phonogram will reproduce the sounds the same as though it contained the record of but one voice.

Fig. 29 shows a single phonograph adapted to receive



the voices of three persons as in singing; the sounds made by the three voices are conveyed through flexible or other tubes to the diaphragm, and will be recorded in a single line of indentations, but when reproduced by the phonet the sounds uttered will correspond to the three voices.

In Fig. 30, the foil is sustained upon a hollow cylinder with a funnel-shaped end. The record is made upon the foil in the usual manner by the phonograph, excepting that holes are made entirely through the foil. A nozzle with a small opening is placed so that it will always be opposite the line of perforations as the cylinder is revolved. This nozzle is connected to a source of compressed air or other fluid, and every time a perforation comes opposite the nozzle, a puff of air passes into the cylinder and a sound is produced upon the principle of the siren. The nozzle may be placed on a spring to keep the end of the nozzle in contact with the line of perforations.

Fig. 31 shows the phonograph as made with a large chamber between the diaphragm and the mouth-piece; this is especially useful in collecting sound when the person speaking or the sound to be recorded is made several feet from the instrument.

Fig. 32 shows a device whereby the indenting point may be dispensed with in the phonograph. The funnel forming the phonograph is made with a diaphragm at the larger end or mouth-piece, and a very small hole at the pointed end adjacent to the foil on the cylinder *g*; this foil should be very thin so that the indentations will be made by the direct action of the air waves as concentrated by the funnel without the interposition of the indenting point.

Fig. 33 shows a phonet in which the phonogram or sound record has been made upon an endless belt; this is a convenient arrangement for toys, as the same may be made to imitate the bark of a dog or other noise made by an animal; and this belt may be of steel or other hard material that allows the same to be used for a long period of time.

Fig. 34 is a perspective view showing a double phonet, there being a spiral line of indentations on each side of the revolving disk *d*, one phonet coming into action as the



other finishes; in this case the spirals should be in opposite directions, so that the disk continuing to revolve in the same direction moves one phonet from the center outwards, and then the other phonet is connected and moved back towards the center; this may be used as a toy.

Fig. 35 represents a phonet in which the phonogram containing a sentence, speech, words, or other sound record is upon a belt or strip wound upon a reel; this belt is drawn along gradually and wound upon the second roller by any suitable mechanism, and as the phonogram is thus moved it actuates the phonet *c, b*.

Fig. 36 shows a phonograph or phonet similar to that shown in Fig. 12, the cylinder *q* is revolved, but remains in one position, and the phonograph or phonet is movable back and forth over the cylinder. In this instance the arm  $m^2$  is extended beyond the screw  $k^1$ , and passes beneath the inclined spring guide  $m^5$ , when the screw is carrying the arm and phonograph towards the right; as the arm  $m^2$  passes from beneath the end of the guide  $m^5$  it is no longer held to the screw, and the arm  $m^2$  and phonet are lifted by the guide  $m^5$  as the springs  $m^6$  draw the shaft, phonograph, and arm, along to the place of beginning, at which place the arm  $m^2$  drops off the end of the inclined guide  $m^5$  into the thread of the screw, and as this revolves it carries the arm along beneath the guide  $m^5$  as before.

Fig. 37 represents the phonograph or phonet upon a pivoted arm, so that it may swing across or at right angles to the line of movement of the intended material or phonogram. In this case the line of indentations may be lengthwise of the belt, or across the same in the arc of a circle.

Fig. 38 shows a phonograph similar to that shown in Fig. 31, except that the sound chamber is of a different shape.

Fig. 39 shows a mouth-piece with an orifice of soft rubber to fit the mouth or the lips of the person speaking, so that all sound waves will be confined to the chamber and diaphragm.

Fig. 40 shows the mouth-piece of the phonograph made with cross slots with irregular edges.

Fig. 41 shows the mouth-piece as perforated with numerous holes.



Fig. 42 shows but one opening in the mouth-piece ; the edges of this are irregular. These irregular edges reinforce the hissing sounds and cause a more perfect phonogram to be produced.

Fig. 43 represents a mouth-piece of mica with a central opening protected at its edges by a wooden ring.

In Fig. 44, the diaphragm  $b$  is of wire gauze with a backing of paper connected to it by any suitable cement, and there is a ring of stiff paper at the edges of the gauze disk to strengthen it.

Fig. 45 represents a diaphragm  $b$  of parchment or similar material stretched tightly within the frame  $b^6$  by cords and screws. The cords may be of different lengths and tension, and respond to and reinforce certain sounds.

Fig. 46 shows a mouth-piece for the phonet made in imitation of the human mouth.

Fig. 47 represents the body portion of the phonograph or phonet made triangular, and the diaphragm is of corresponding shape.

Fig. 48 represents three cylinders, each provided with a phonograph or phonet ; this is useful in recording and reproducing three-part singing or music.

Fig. 49 represents a phonet made as a tube, with flaring or trumpet-shaped ends, and with two diaphragms 15, 16, placed crosswise of the tube so as to form an air chamber. There is a third diaphragm  $b$ , which is vibrated by the movement of the reproducing point  $c$ , and said diaphragm gives motion to the air in the chamber, and vibrates the diaphragms 15, 16, which latter produce air waves, and the sounds issuing from the two trumpet-shaped ends will blend and increase the volume of sound.

Fig. 50 represents a device whereby deep indentations are made in the metal foil. Two diaphragms are employed, the first ( $b^2$ ) is vibrated by the sound vibrations, and controls a valve  $b^7$  in a tube connected with a source of compressed air or other fluid ; this valve  $b^7$  allows more or less air to pass to the diaphragm  $b$ , according to the vibration of the diaphragm  $b^2$ , hence the diaphragm  $b$  will vibrate in harmony with the diaphragm  $b^2$ , but it will be acted upon by greater force, and consequently the indentations



will be deeper in the foil than if the diaphragm  $b$  was acted upon simply by the sound vibrations of the voice.

Figs. 51 and 52 represent a device that may be used with a phonet to increase the loudness of the sounds reproduced. The sound vibrations from the phonet are conducted by a tube shown by dotted lines in Fig. 51, to the diaphragm  $b^3$  that controls a valve  $b^7$  in a tube connected with a reservoir of air or other fluid under pressure, and the air as it escapes by the valve passes into the trumpet-shaped end of the tube, and produces sounds that are very loud and clear, and are a reproduction of the sounds resulting from the use of one of the phonets before described.

This same apparatus may be used to reproduce with louder utterances a person's voice, the sound from the voice being used to vibrate the diaphragm  $b^3$ , and thereby regulate the air waves escaping from the valve  $b^7$  into the trumpet.

Fig. 53 shows the speaker's head within a box or case; in this instance nearly all the sound vibrations act upon the diaphragm.

Figs. 54 and 55 illustrate how the movements of the lips in speaking may be recorded and reproduced. In this instance, a lever applied to the diaphragm carries the indenting point  $c$ , Fig. 55, and the end of this lever is placed in the mouth of the speaker, and the movement of the lips regulates the indentations in the foil.

A similar apparatus shown in Fig. 54 within a case is connected to the movable lips of a mask, so that these lips open and close as in articulation, at the same time that the sound vibrations are given by the phonogram to the phonet.

Fig. 56 represents a toy phonet in which the phonogram strip 35 is secured at one end to a cylinder upon which it is wound. By pulling upon the strip it is unwound, and a rubber cord 37 is wound upon the shaft of the cylinder. When the hand is removed from the indented strip, the rubber cord rotates the shaft and winds up the phonogram upon the cylinder, and the sounds are reproduced in the phonet by the phonogram acting upon a point and diaphragm  $a$ . The movement of the shaft is regulated by the fan, worm, and pinion 38.



In Fig. 57, the cylinder for moving the phonogram strip is shown as provided with pins that enter holes in the edges of the strip; this causes the strip to be fed along very regular.

In Fig. 58 the cylinder with pins is shown as made with heads to act as guides for the strip.

Fig. 59 shows a re-indenting device for amplifying or increasing the size of the indentations. There are two rollers, one of which  $a^4$  travels faster than the other  $a^3$ , and there is a lever 40 pivoted at 41, and provided with a point  $c$  for each cylinder. One point follows the indentations in the cylinder  $a^3$ , and the other rests upon  $a^4$ , and as this travels the fastest, the indentations made therein will be longer and also deeper by the point being at the outer end of the lever.

In Fig. 60, one roller 42 of the pair is made of hardened metal with the sound record in relief. This is obtained by electrotype or other process from an iron foil or other metal phonogram, and this roller is used to indent strips or sheets of foil or rollers to produce copies that can be used with the phonet.

Fig. 61 represents a roller 42 of hardened metal with the record in relief, and arranged so as to knurl or indent the phonogram in a roller 43 of soft metal that is to be pressed against the roller 42 by a screw or other suitable means.

The cylinder having a spiral groove in its surface may be made by placing the mould shown in Fig. 62 around a cylinder or shaft, and filling the space between the cylinder and mold with plaster of Paris or other suitable material. The mold is of metal with a screw or spiral rib projecting therefrom, and it is made in two parts and hinged so that it can easily be removed when the plaster of Paris is dry.

For amusement or instruction, the phonograph is capable of extended use; for instance, a revolving cylinder, see Fig. 63, containing rows of indentations representing the letters of the alphabet, and provided with keys containing corresponding letters, can be used in teaching the alphabet, and sentences, speeches, and other matter can be



spoken by the phonet, and repeated by the learner without the eyesight being called into use.

Clocks may be provided with phonogram cylinders or wheels to call off the hours, to give alarms, &c.

The phonogram may be upon a strip, sheet, belt or roller, and it can be of a dog's bark, a rooster's crow, a bird's song, a horse's neigh, and these can be used in toy animals with a simple phonet for reproducing the sound.

In copying phonograms, or making duplicates, an original phonogram may receive a deposit of copper or iron in a plating bath; and, if of iron, may be carbonized to convert it into steel and hardened, and then the same should be backed up with type metal, and used for impressing strips or pieces of metal.

A bed of gutta percha, or similar material, may be used to sustain the sheet metal while being pressed. Numerous copies of the original phonogram can thus be reproduced.

A plaster cast can be used for producing a copy by pressure.

The governor to regulate the speed of the instrument may be made of a pendulum weight 61, see Fig. 64, hung at the lower end of a rod that is provided with a universal joint at 62, and the upper end of the rod is moved around by a crank 63 that is revolved by the train of gearing. As the speed increases the weight will describe a circle of larger diameter, and thereby increase the resistance.

The universal joint may be displaced by a spring wire, Fig. 65, that allows of the movement.

A magnet 64 upon the crank arm 63, Fig. 66, may be used to revolve the pendulum by attracting an armature at the upper end of the pendulum rod, and thereby avoid the friction resulting from the contact of the surfaces of the pendulum rod with the crank.

In Fig. 67 the diaphragm *b* is represented as connected to a pair of delicate piston valves within a tube 68 that has three ports; one, 69, is connected to a reservoir of compressed air, the others, 70 and 71, are connected to a chamber 72 at opposite sides of the diaphragm, so as to vibrate the same in harmony with the diaphragm *b*, but there will be greater amplitude given to the same by the pressure of the air, and by a connection to the phonet diaphragm *b*<sup>2</sup> the sound produced will be greatly increased.



What I claim as my invention is,—

First. The combination with the diaphragm and point of a flat receiving surface and means for revolving the receiving surface, and causing the point to follow a volute or spiral line, substantially as represented in Figs. 1, 2, 6, 7, 8, 9, 10 and 34.

Second. The combination with the revolving plate phonograph or phonet of a propelling weight or spring and a governor to regulate the speed, and ensure uniformity of movement, substantially as set forth.

Third. A revolving disk provided with a clamping frame to secure the foil or other material in combination with the swinging arm, diaphragm, and point, substantially as specified.

Fourth. In a phonograph or phonet, a spring introduced between the diaphragm and the point, substantially as set forth and shown in Figs. 16, 17, 18, 19, 22 and 26.

Fifth. In a phonograph or phonet a rubber spring, or similar device to dampen the vibration of the diaphragm, and prevent false vibrations, as set forth and shown in Figs. 16 and 21.

Sixth. The combination with the diaphragm in a phonograph or phonet apparatus of a lever to modify the relative action of the diaphragm and point, substantially as described, and shown in Figs. 17, 18, 27.

Seventh. The combination with the diaphragm and point of a permanent or electro-magnet, substantially as described, and represented in Figs. 24, 25, 26.

Eighth. The method of recording and reproducing two or more sounds or speeches simultaneously, substantially as described, and as illustrated by Figs. 28, 29 and 48.

Ninth. A phonet composed of a perforated sirene and a jet tube, substantially as described, and represented in Fig. 30.

Tenth. The mechanism for producing a phonogram, and employing the same in a phonet, substantially as described, and illustrated in Figs. 32, 33, 35, 36 and 37.

Eleventh. The combination with the phonograph, diaphragm, and point of a sound chamber, substantially as described, and illustrated in Figs. 31, 38, 39 and 53.



Twelfth. The diaphragm and mouth-pieces for speaking phonograph, substantially as described, and as illustrated in Figs. 41, 42, 43, 44, 45 and 46.

Thirteenth. The combination with a diaphragm and its point of two diaphragms for the purposes, and substantially as shown in Fig. 49.

Fourteenth. The combination with a diaphragm and valve actuated by sound vibrations a source of compressed fluid and a trumpet, as in Figs. 51, 52, or a phonograph as in Fig. 50, substantially as set forth.

Fifteenth. The combination of two diaphragms with a valve and a source of compressed fluid, as represented in Fig. 67, for increasing the volume of the voice or other sound, as set forth.

Sixteenth. The combination with two or more phonograms of phonet keys for selecting letters or utterances as described and illustrated in Fig. 63.

Seventeenth. The means for duplicating or reproducing phonograms from an original phonogram, substantially as set forth.

Eighteenth. The combination with the phonograph or phonet of the revolving crank and pendulum governor, substantially as described, and shown in Figs. 64, 65, 66.

Nineteenth. The combination with the phonograph of a lever moved by the lips, and of a lever and phonet to move the lips of a mask, substantially as described, and illustrated by Figs. 55 and 54.

Twentieth. The combination with a phonogram of a clock movement or toy and a phonet for reproducing sounds for clocks or toys, substantially as set forth.

IN WITNESS WHEREOF, I, the said Thomas Alva Edison, have hereunto set my hand and seal, this 17th day of September, A. D. 1878

THOMAS ALVA EDISON. [L. S.]

Witnesses :

CHAS. H. SMITH,  
76 Chambers St.,  
New York,

HAROLD SERRELL,  
76 Chambers St.,  
New York.



# U. S. Circuit Court,

SOUTHERN DISTRICT OF NEW YORK.

AMERICAN GRAPHOPHONE CO.

vs.

UNIVERSAL TALKING MACHINE CO

**"Defendant's Exhibit Copy Jones File  
Wrapper and Contents, June 18, 1902."**

FILE WRAPPER AND CONTENTS.

PATENT No. 688,739.

Dec. 10th, 1901.

JOSEPH W. JONES.

METHOD OR PROCESS OF MAKING RECORDS FOR THE  
REPRODUCTION OF SOUND WAVES.

Number (Series of 1900) 1897.

Div. 23  
(Ex'r's Book)

112

2196

Patent No. 688,739.  
Name, Joseph W. Jones.....  
Assor to himself and Joseph A. Vincent of .....  
.....Philadelphia, Pa.  
of.....New York.....  
County of.....  
State of New York.....  
Invention—Method or Process of making Records for  
the Reproduction of Sound Waves.



## ORIGINAL.

Petition.....Nov. 19, 1897.  
 Affidavit....." " "  
 Specification....." " "  
 Drawing.....  
 Model or Specimen.....not req'd.  
 First fee cash.....\$15 Nov. 19, 1897.  
 " " Cert.....  
 App. filed complete.....Nov. 19/97.

Examined—Nov. 21/01 J. T. Newton,  
 Countersigned.....J. W. Babson,  
 For Commissioner.

Notice of allowance November 22, 1901.  
 Final fee cash.....  
 Final fee cert.....  
 Patented December 10.....1901.  
 Associate Attorney Philip Maure..Attorney D. S. Williams,  
 Wash. D. C. 903 Walnut St.  
 Phila. Pa.

Jones 659,170.

United States Office of Designs,  
 and DAVID S. WILLIAMS, Trademarks,  
 Foreign Patents. 903 Walnut St. Copyrights.

PHILADELPHIA, Nov. 18, 1897.

Hon. COMMISSIONER OF PATENTS:

*Sir.*—I enclose herewith the petition and specification constituting the application for a patent for a Method or Process of making records for the reproduction of sound waves.

I also enclose check for Fifteen dollars in payment of first Government fee thereon.

Very Respectfully,  
 DAVID S WILLIAMS.



## PETITION.

To the COMMISSIONER OF PATENTS :

The petition of Joseph W. Jones of the United States, residing at New York, in the County of New York, State of New York, prays that Letters Patent may be granted to him for an improved Method or Process of Making Records for the Reproduction of Sound Waves as set forth in the annexed specification.

And he hereby appoints David S. Williams, of 903 Walnut Street, in the City and County of Philadelphia, State of Pennsylvania, his attorney with full power of substitution and revocation, to prosecute this application to make alterations and amendments therein, to receive the Patent and to transact all business in the Patent Office connected therewith. Signed at Philadelphia, in the County of Philadelphia and State of Pennsylvania, this fifteenth day of November, 1897.

JOSEPH W. JONES.

## SPECIFICATION.

To all whom it may concern :

Be it known that I, Joseph W. Jones, a citizen of the United States, residing at New York, in the County of New York and State of New York, has invented a certain new and useful improved Method or Process of Making Records for the Reproduction of Sound Waves, and he does declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a new and useful method or process of making records by and in accordance with sound vibrations and reproducing copies thereof. The object being to produce a more accurate copy of original record and to dispense with the old method or process of etching which destroys, to a great extent, the delicate vibrations, and is further objectionable from the fact that in many cases the disks are found to be of



different degrees of hardness at different points, and the etching process cannot be evenly carried out, and many original records are thus spoiled, thus entailing a great waste and loss. And in further carrying out this process it is necessary after the plate has been etched to run a blunt pointed stylus through the groove to smooth the ragged etched surface, which greatly impairs the value of the reproductions.

In my improved process I overcome these objections by the following methods.

I first make a plate or disk of hard wax, preferably beeswax hardened by the adding of a small quantity of rosin or pitch.

This plate or disk is then placed upon an instrument commonly employed for the purpose of recording sound vibrations, and a helical groove of even depth containing sinuosities representing sound waves produced by the movement of the diaphragm and stylus is engraved upon the plate or disk.

The plate or disk is then taken from the machine and the surface of the same is prepared with a coating of carbon such, for instance, as graphite as commonly employed in the process of electroplating, or, as a substitute, nitrate of silver may be used for the purpose of preparing the disk to receive the electroplating deposit.

The plate or disk is then placed in an electroplating bath and a layer of nickel or other hard metal is deposited upon it. This thin shell of deposited metal is then removed from the record disk and is secured to or mounted upon a supporting die of brass or bronze which may be accomplished by casting the brass or bronze upon the steel or nickel in a die, or by sweating the two metals together.

The die, which is in the form of a relief plate, is then placed in a press and brought in contact with a disk of a suitable composition, such as electrose or fibrous material upon which an impression is made by the relief plate, and the finished plate or disk is produced, corresponding in every detail with the original record.

Having described my invention, what I claim and desire to secure by Letters Patent, is:

*First*.—The method or process of reproducing records



of sound vibrations which consists in engraving an undulatory line of even depth by and in accordance with sound vibrations upon a disk or plate of slightly resisting material, coating said disk or plate with a conducting medium, then producing a relief plate from the original by the process of electroplating, and finally producing the finished record or copy of the original by pressing the relief plate into a disk or plate of fibrous or other suitable material.

*Second.*—The method or process of reproducing records of sound vibrations which consists in engraving an undulatory line of even depth by and in accordance with sound vibrations upon a disk of hardened wax, coating said disk with a suitable conducting medium such as graphite, then producing from said disk a relief plate of nickel or other hard metal by the process of electroplating, and in finally making a reproduction of the original by pressing the relief plate into a disk of electrose or other like material.

*Third.*—The method or process of reproducing records of sound vibrations which consists in engraving an undulatory line of even depth by and in accordance with sound vibrations upon a disk of hardened wax, coating said disk with a suitable conducting medium such as graphite, then producing from said disk a relief plate of nickel or other hard metal, mounting said relief plate upon a suitable die, and finally producing a finished record or copy by pressing the relief plate into a disk of electrose or other like material.

Room 221.

DEPARTMENT OF THE INTERIOR,  
United States Patent Office,

WASHINGTON, D. C., Dec. 21, 1897.

JOSEPH W. JONES,

Care D. S. Williams,  
903 Walnut Street,  
Philadelphia, Pa.

Please find below a communication from the Examiner in charge of your application, for Method or Process of



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Improved Method or Process of } Filed November 19, 1897.  
Making Records for the Re- } Serial Number 659,170.  
production of Sound Waves.

The Honorable COMMISSIONER OF PATENTS,  
Washington, D. C.

Substitute for claims 1, 2 and 3 the following:

2. The method or process of reproducing flat sound records from an original flat record engraved in hardened wax, which consists in coating the original record with a thin layer of carbon or graphite, depositing upon the record thus prepared a layer of nickel or other hard metal to form a relief plate and in finally producing a permanent record by pressing said relief plate into a disc of material having no chemical action upon said relief plate.

Raymond R. Wile  
Research Library



records from an original plate record engraved in hardened wax, which consists in coating the original record with a thin layer of graphite, depositing upon the record thus prepared a layer of nickel or other hard metal to form a relief plate, mounting said relief plate upon a suitable die, and in finally producing a permanent record by pressing said relief plate into a disc of fibrous material having no chemical action upon the relief plate.

4. As an article of manufacture, a disc of fibrous material having formed upon one side a phonographic record, substantially in the manner specified."

In reference to the Edison patent No. 382,419, cited by the Examiner in the last official communication, applicant is at a loss to know what bearing this patent has upon the present application.

Edison uses an ordinary wax cylinder and deposits directly upon the same a thin layer of silver, he then melts out and destroys the original or master record, splits the deposited shell, flattens the same, and completes his operation by the process of Knurling, every step of which is entirely different from that adopted by applicant. In applicant's process a flat disc or plate of hard wax is employed, and not an ordinary wax cylinder, as shown and described in the Edison patent, applicant hardens his wax disc so that it will withstand the treatment necessary to prepare it to receive the metal deposit, and, finally, applicant moulds or presses his relief plate into a suitable substance and produces a permanent record.

It will be seen, by comparing the several steps in the two processes, that they are entirely unlike, and in respect to the final steps; Edison makes a distinction between the two in his specification, see page 1, line 18 to 21, in which he says :

"By my present invention I propose to apply the process of Knurling to the duplication of sound phonograms as distinguished from moulding."

It will be seen from this statement that Edison admits a difference between moulding or pressing, which is substan-



tially the same thing, and Knurling process, for which latter he received a patent.

Applicant further desires to state that with the experience he has had in making records, the process described and claimed in the Edison patent is impracticable and that a useful record has never been produced by this method, and it is thought from the knowledge of the apparatus at present in use for duplicating cylindrical records the learned Examiner will entertain the same view in this matter.

It is not thought that the patent granted to E. Berliner No. 548,623, has anything in common with applicant's process.

As will be well understood the Berliner process is an etching process. In practice, he first takes a metal disc, coats the surface with a resist, draws a wave line through the resist, etches out the exposed surface or line and after removing the resist he then coats the etched plate with a layer of a material capable of resisting the action of a sulphate of copper solution, deposits a layer of copper upon his zinc plate, electrolytically to form a relief plate or matrix, deposits a thin layer of metal (nickel) upon the face of the relief plate or matrix to resist the action of sulphur, and finally presses the relief plate into a sheet of temporarily softened hard rubber.

Applicant has discovered by a series of elaborate experiments that suitably hardened wax forms a most perfect material with which to form his original or temporary record, and that by preparing the wax as described and then depositing the hardened metal upon the prepared surface a most perfect relief plate may be obtained, and, finally, applicant has made the discovery that by the use of a suitable material which has no action whatever upon the surface of the relief plate that a perfect copy of the original may be obtained.

Applicant does not embody in his invention the process of etching, he does not employ an original metal record, but simply produces a temporary wax record, which by a simple and cheap preparation is ready to receive the deposit of metal which forms the relief plate, and, finally, by the use of a material containing no sulphur nor rubber,



hard or soft, he is able to produce directly from the relief a perfect copy of the original record.

A favorable reconsideration of this case is most respectfully requested.

Respectfully submitted,

DAVID S. WILLIAMS,  
Att'y for J. W. Jones.

OFFICE LETTER OF JUNE 28, 1898.

This application has been reconsidered as amended and in view of applicant's argument on the 9th instant.

Claims 2 and 3 are each rejected for the reason that they state that the material into which the relief plate is impressed has no chemical action upon said plate. No statement of this kind has been previously made in this application and it must therefore be regarded as new matter. Claims 1, 2 and 3 are each rejected upon the patent to Berliner of record, in view of the patent to Edison also of record.

Berliner patent anticipates this claim in every respect except that the metal is deposited upon a metallic record. This, however, is believed to be immaterial, and, especially in view of the patent to Edison, who deposits the copper upon wax, to be without invention.

Claim 4 is rejected as being without invention in view of the patent to Berliner of record, or of the English patent to Young, No. 1478 of 1894, in Graphophone Tablets. These patents show that celluloid, xylonite and vulcanite have been used for this purpose. In view of these patents, it is held that applicant has merely made an obvious substitution of material.

J. T. NEWTON, Ex.

S. E. F.



## IN THE UNITED STATES PATENT OFFICE.

Room 221.

J. W. JONES.

Method or Process of Making Records for the Reproduc-  
tion of Sound Waves.

Filed Nov. 19, 1897.

S. N. 659,170.

Hon. COMMISSIONER OF PATENTS :

*Sir.*—Please recognize Philip Mauro, Esq., of Wash-  
ington, D. C., as my Associate Attorney in the above-en-  
titled case.

Respectfully submitted,

DAVID S. WILLIAMS,  
Attorney of Record.

Philadelphia, March 13th, 1901.

## IN THE UNITED STATES PATENT OFFICE.

Room 221,

Joseph W. Jones,

Method or Process of Making Records for the Reproduc-  
tion of Sound Waves.

Filed Nov. 19, 1897.

S. N. 659,170.

Hon. COMMISSIONER OF PATENTS :

*Sir.*—Please cancel the description in the above entitled  
case, and substitute the following :

Substitute specification.

“ My invention relates to the commercial production of  
sound-records, and has for its object the production of a  
number of copies of an original record characterized by  
lateral undulations of substantially uniform depth. Here-  
tofore, records of this character, generally known as  
gramophone records, have been produced by first tracing



the lateral undulations as zig-zags in a fatty (inky) film that protects an etching surface, then etching this tracing into the material to form a groove, then running a blunt stylus through this groove to smooth the ragged etched surface, and finally electroplating this touched up surface and pressing the matrix so formed into a suitable material to form the commercial record. The etching process, for reasons unnecessary to state, causes considerable departure or deviations, so that the etched groove is far from being a correct representation of the path of the recording stylus. The deformations from this cause are still further exaggerated by the use of the smoothing stylus. I avoid these objections by producing in the first instance a fully finished original record whose grooves are of the final depth required, slight but appreciable, thus doing away with the necessity for etching and the subsequent smoothing made necessary thereby. The original records made by this process are electroplated, and the electroplate matrix used as a die, in the ordinary manner.

In carrying out my invention, I employ a disc or tablet of suitable recording material (as wax or a wax-like composition, preferably rendered sufficiently hard—as by an admixture of rosin—to withstand the treatment employed in giving it an electrical conducting surface). Upon the surface of this tablet I then form, by the use of a sound recording machine in a well known manner, a spiral groove of practically uniform depth that contains lateral sinuosities or irregularities corresponding to or representing the sound waves recorded. The original record so formed is an entirely new article. It is an exact copy of the record to be used for reproducing; it is a complete and finished record, its grooves being of a slight yet appreciable depth; and no deepening or re-touching by an etching fluid or in any other manner, is required.

This original record is then prepared for receiving the electroplate deposit, by coating its surface with an electric-conducting medium, such for instance as carbony (graphite) as commonly employed in the process of electro-plating—or, as a substitute, nitrate of silver.

This coated plate is then placed in an electroplating



bath, and a layer of metal (nickel, steel, etc.) is deposited upon it. The thin shell or matrix thus formed is then separated from the original record, which may be used repeatedly in the same manner to form other matrixes. The matrix itself may be backed up with a supporting plate, such as brass or bronze cast upon (or sweated to) the reverse of the matrix.

"This complete matrix constitutes a stamp or die, the record appearing on its face in the form of a raised ridge having lateral sinuosities or irregularities that correspond to the sound-waves, being the exact counterpart of the original sound-groove.

"This die is then pressed or stamped into a disc or tablet of suitable composition, such as electrose or other fibrous material that can be readily handled in a soft state, and that will receive truly, and retain faithfully, an accurate impression of the record on the face of the die. The stamped record thus produced is the finished commercial article, ready for use—being a faithful and indestructible copy of the original path traced by the recording-stylus.

"I am aware that it has been proposed to make duplicates of sound-records of the vertically undulated character, the type generally known as graphophone records, by first coating the surface of such sound-record with a conducting material, next depositing an electroplate thereon to form a die, and then pressing this die into some suitable material. This process is impracticable and unsuccessful for two reasons.

"First, when the conducting materials (as plumbago) is deposited upon the vertical irregularities that are the very essence of this kind of record, it forms a covering that resembles on a minute scale, a light fall of snow over a landscape. The sharp contours of the vertical irregularities are rounded (the more delicate and minute irregularities being filled in and completely obliterated) with a resulting mutilization of the record; again, when the electroplate die is pressed into the surface to be stamped, any inequality in the material being stamped would cause unequal impressions to be made, some deeper than others, which is fatal to the accuracy of a record whose very existence lies in the comparative depths and heights (vertical) of its irregulari-



ties; furthermore, the presence (between the die and the material being stamped) of minute particles of dust or other foreign matter, or even of particles of air (air bubbles), would to that extent still further distort and disfigure the impressions stamped by an already inaccurate die. Whereas in the laterally undulated records, any vertical deformation (whether due to the causes just pointed out or to any other cause) does not in the slightest degree effect the accuracy of the record, the essence of which lies in its lateral undulations. For the deposit of a film of conducting material does not modify the lateral outline, but only the vertical irregularities; and the deformations caused by the presence of foreign particles in the stamping or pressing process are vertical, and consequently do not effect a record that depends upon its lateral and not its vertical outlines.

"For the foregoing reasons I do not claim my new process in connection with sound-records characterized by vertical irregularities, but limit it to records characterized by lateral undulations of practically uniform depth."

Cancel claim "4."

Add the following claims as claims 4, 5, 6, 7 and 8:

4.

"The herein-described method of producing original sound-records, which consists of cutting or engraving upon a tablet of suitable material a record-groove of appreciable and practically uniform depth and having lateral undulations corresponding to sound-waves, substantially as described.

5.

"The herein-described method of producing sound-records, which consists in cutting or engraving upon a tablet of suitable material a record-groove of appreciable and practically uniform depth, having lateral undulations corresponding to sound-waves, next coating the same with a conducting material, then forming a matrix thereon by electrolysis, and finally separating this matrix and pressing the same into a tablet of suitable material, substantially as described.



6.

"The herein-described method of producing copies of sound-records of the type characterized by lateral undulations of practically uniform depth corresponding to sound-waves, which consists in coating the original sound-record with a conducting medium, depositing a matrix thereon by electrolysis, and finally pressing said matrix into a tablet of suitable material, substantially as described.

7.

"An original sound-record formed of a wax-like material and having engraved upon its surface a spiral groove containing lateral undulations of uniform depth, the depth being slight but appreciable, and the undulations corresponding to sound-waves, substantially as described.

8.

"The copy of a flat sound-record impressed in suitable material by means of an electroplate formed directly upon an original sound-record engraved to an appreciable depth with laterally undulating lines representing sound waves, substantially as described."

## REMARKS.

With respect to the rejected claims 1, 2, and 3, applicant has already pointed out in his argument of June 8, 1898, the want of pertinence of the references of record, Edison and Berliner. With respect to the Edison process it suffices, therefore, to call attention to the cylindrical shape of the record, which renders it inherently impossible to make duplicates of such a record by this Edison process. The Hon. Examiner will appreciate the fact that to *flatten out a cylindrical* record would destroy it to such an extent as to destroy its usefulness as a sound-record capable of reproducing the original sound; while to turn it entirely inside out would be even worse. Again, overlooking this objection, the record of a single word may (and frequently does) occupy several



turns or revolutions of the helical groove containing the record proper, and to split the shell B (even "with a thin saw") entirely removes a portion of every complete revolution which renders the record utterly worthless as a *sound-record capable of reproducing sound*. And finally (even overlooking both the objections just pointed out), in dealing with such microscopic things as sound-records, in which the grooves run one hundred to the inch, and the variations in the irregularities are estimated by the ten-thousandth part of an inch, as a practical question it is mechanically impossible to have (and keep) the length of knurling surface D and the circumference of blank cylinder G absolutely equal; still more is it impossible to insure that each and every record-groove impressed into the blank G by a ridge on surface D will terminate with absolute exactness so as to fit the beginning of the next groove. Consequently, the cylinder G, instead of bearing on its surface a continuous helical thread, will contain a broken thread consisting of a number of disconnected or badly connected separate grooves. Each one of the foregoing objections, if alone, shows that the process is impracticable; while the cumulative results of the presence of all of these objections proves this Edison process to be a failure—to be *inoperative*. Therefore, under all the authorities, this patent which discloses to the public no useful or available knowledge is not a bar to defeat the claims of a meritorious inventor who has subsequently produced a successful and highly useful invention. See the Telephone Cases in 126 United States Reports, 531, and other authorities collected in Rob. on Pts. S. 318, N. 3.

In view of the foregoing and the distinctions pointed out in the amended specification, it is confidently believed that the Hon. Examiner will withdraw this reference from further consideration.

With respect to the Berliner patent of record, it suffices to note that Berliner does not apply the conducting medium, a step set forth in each of the rejected claims; that he employs electrolysis *three* (3) times, while applicant employs it only *once* so that the Berliner patent is no reference to anticipate applicant's claims; and that it is im-



proper to select one step from an unsuccessful and inoperative process and interpolate it into a second (and different) process to produce an anticipation of a third process entirely different from either of the other two.

With regard to the objection of claims 2 and 3 on the ground of involving "new matter," applicant desires to reply that in the first paragraph of page 2 of his original specification he refers to *nickle* or *steel* or other hard metal as forming his electroplate; that in the following paragraph he says this metal surface is pressed into a disc of a *suitable* composition, such as electrose of fibrous material; and that it is matter of common knowledge that such materials have no sulphurous fumes, while the Berliner patent of record shows that softened rubber (though having sulphurous fumes) does not attack nickel or steel. For these reasons applicant submits that he is amply justified in stating that electrose and other fibrous materials have no chemical effect upon nickel or steel, and is therefore warranted in claiming the use of these materials under such a designation.

Reconsideration of the rejected claims and allowance of all the claims are respectfully requested.

Respectfully submitted.

PHILIP MAURO,  
Associate Attorney of Record.

Dated March, 1900.



Room 219.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., April 11, 1900.

J. H. D.

JOSEPH W. JONES,

Care Philip Mauro,

City.

Please find below a communication from the Examiner in charge of your application, for Method or Process of Making Records for the Reproduction of Sound Waves, filed Nov. 19, 1897, serial number 659,170.

C. H. DUELL,

Commissioner of Patents.

The statement on page 3 of the specification beginning at the second paragraph with "I am aware" is objectionable because not accurate, since it is known to the Examiner that records made by the process herein described are in fact practical and now in use and there are in his office good records made by this same process.

Claim 4 recites the method which is identically the same as described in the patent to Rosenthal and Frank, No. 474,410, May 10, 1892 in Acoustics, Graphophones and the claim is accordingly rejected on this reference.

The remaining claims in the case are each and all rejected on the English patent to Young already of record.

The process described by applicant in this application appears to be identical with the one described in this Young patent, the only difference being that the process is applied to flat gramophone records instead of cylindrical graphophone records, and it is not considered to be invention to apply an old process to any sound record of any particular form of tablet or particular kind of undulatory sound records.

J. T. NEWTON, Ex.

G. R. B.



## IN THE UNITED STATES PATENT OFFICE.

Room 219,

J. W. Jones.

Method or Process of Making Records for the Reproduction of Sound Waves,

Filed Nov. 19, 1897.

S. N. 659,170.

HON. COMMISSIONER OF PATENTS:

*Sir.*—In Official Letter of April 11th, the Examiner objects to certain statements in the amended specification on the ground that the Examiner knows that records are made by the process referred to by applicant as impracticable, and that this process is in fact practical and now in use, and that the Examiner has in his office good records made by this same process. Applicant would respectfully request Examiner to furnish him with specific information to enable him to adjudge of the propriety of amending his claims, or of cancelling them, or of prosecuting this case further. To this end, the Examiner is requested to give him specific information as to: the particular steps constituting the process in question; by whom, and where, the process has been carried out, and on what date. It is also requested that applicant's attorney be permitted to examine the records referred to in Examiner's letter.

Applicant will have to await further information on this point before he can take action responsive to the last official letter.

Respectfully submitted,  
 PHILIP MAURO,  
 Attorney of Record.

Dated June 22, 1900.

## OFFICE LETTER OF JULY 2, 1900.

The records referred to in the last official action were exhibited in the office by T. B. Lambert, whose patent on the same is No. 645,920, March 20, 1900, and further information concerning them may be obtained from the inventor.

W. J. RICH,  
 Acting Examiner.

G. R. B.



## IN THE UNITED STATES PATENT OFFICE.

Room 219,  
Joseph W. Jones,  
Method or Process of Making Records for the Reproduc-  
tion of Sound Waves,  
Filed Nov. 19, 1897.  
S. N. 659,170.

HON. COMMISSIONER OF PATENTS.

*Sir.*—Please amend the above-entitled case as follows:  
Page 2 of substitute specification, line 15, after the  
sentence ending with "recorded," insert the following:

"This cutting or engraving of a record-groove by the lateral movement of the stylus differs from the operation of the well-known graphophone system in that the resistance offered the stylus of a graphophone in cutting downward to produce the vertical irregularities characteristic of that system, varies practically as the cube of the length of the vibrations of the diaphragm and stylus; whereas, in producing my original records, the resistance encountered by my recording stylus is exactly equal to the length of the vibrations. On account of this difference in principal, I am enabled to obtain more accurate—and therefore better—records of the original sounds."

Same page, line 30, before the word "The," insert:

"Owing to the flat shape of the original and of the matrix, and to the fact that the sound-groove of the former and the corresponding ridge of the latter do not lock, the two are separated readily without the employment of heat or of shrinkage, it being obvious that the repeated heating and resultant cooling are very injurious to the accuracy of the record."

Cancel the claims, and substitute the following claims 1 to 5 inclusive:

"1. The herein-described method of producing original sound-records, which consists of cutting or engraving upon a tablet of suitable material, by means of the lateral vibra-



tions of a suitable stylus, a record-groove of appreciable and practically uniform depth, the same having lateral undulations corresponding to the sound waves, substantially as described.

"2. An original sound-record formed of a wax-like material and having engraved upon its surface a spiral groove containing lateral undulations of uniform depth, the depth being slight but appreciable, and the undulations corresponding to sound waves, substantially as described.

"3. The herein-described method of producing sound-records, which consists in cutting or engraving upon a tablet of suitable material, by means of the lateral vibrations of a suitable stylus, a record groove of appreciable and practically uniform depth and having lateral undulations corresponding to the sound-waves, next coating the same with a conducting material, then forming a matrix thereon by electrolysis, and finally separating this matrix and pressing the same into a tablet of suitable material, substantially as described.

"4. The herein-described method of multiplying copies of original sound-records of the type characterized by grooves of uniform depth having lateral undulations corresponding to sound-waves, which consists in rendering the surface thereof electrically conductive, next forming a matrix thereon by electrolysis, then separating the matrix from the original without the use of heat, and finally impressing said matrix into a tablet of suitable material, substantially as described.

"5. The copy of a flat sound-record impressed in suitable material by means of an electroplate formed directly upon an original flat sound-record engraved to an appreciable and uniform depth with laterally undulating lines corresponding to sound waves, substantially as described."

#### REMARKS.

With regard to the Examiner's objection to the paragraph beginning on page 3 of the substitute specification,



in view of the recent Lambert patent of March, 1900 (filed Aug. 14, 1899), applicant calls attention to the fact that the present application was filed in November of 1897, and that his substitute specifications, as well as all other references to the existing state of the art, dates back and applies to the art as the latter was known in November, 1897, at which date and in view of the knowledge then possessed, the statement in question would be correct. Of course this Lambert patent has no effect, as an anticipating "reference," nor is the Examiner understood as citing it for such; this patent *is* significant, though, in showing what room for invention and patentability there remains even after the publication of the English patent to Young, of record.

Present claim 1 corresponds in scope to former claim 4, against which the Examiner cited only Rosenthal & Frank.

Claim 2 corresponds to former claim 7, claim 3 to former claim 5, claim 4 to former claim 6, and claim 5 to former claim 8, against all of which the only reference the Examiner cited in his last letter is the English patent to Young. No other reference was cited against any of those claims.

#### APPLICANT'S INVENTION.

Applicant's invention lies (1) in the novel manner or process of making an original record of sound and in such record itself, and (2) as a result involving the foregoing, in the *complete process* (consisting of a series of steps) that produces a new and improved commercial record and also in such record itself. Claim 1 sets forth the process of making the original record, and claim 2 is for this record itself.

#### PRIOR PRACTICAL ART.

At the date of this application, and disregarding for the moment the Rosenthal & Frank patent (which will be considered later), all sound records were made in either one of *two* ways exclusively:

By the vertically engraving method of Bell & Tainter's



graphophone (the vertically indenting method of the 1877 tin foil phonograph having been obsolete upwards of 20 years), or by the *etching* method of Berliner's gramophone. Graphophones had been used to an enormous extent, and graphophone records produced by the million, and the same is true to a less extent of gramophone and gramophone records. This is matter of common knowledge. It is also matter of common knowledge that no other records and systems were in practical existence. The more those, skilled in the talking machine art, studied to produce improved records of the gramophone type, the more attention was devoted to developing the *etching* process—advances were made in the material of the plate to be etched, in the “resist,” in the treatment of the resist while the record was being traced in the etching bath, the “sound box,” and other apparatus for making the original “tracing” to be *etched, etc.* This is evidenced by reference to the list of patents successively applied for and granted in this branch of the art, and whoever attempted to follow in the course thus blazed out by the efforts of painstaking inventors, would be led further and further away from the idea of producing a record “consisting of a groove of uniform depth and having undulations corresponding to sound waves” by means of the engraving method. (See the Telephone Cases, C. D., 1888, 321; Edison Co. *vs.* U. S. Co., C. D., 1892, on page 611; and many other cases with which the learned Examiner is familiar.)

Similarly, the more those skilled in the art endeavored to improve the engraving system of producing records the more stress was laid on developing the vertically-cutting method, and on producing improved records of that type, *i. e.*, having vertical irregularities. An examination of the successive patents in this branch of the art will emphasize this: They show changes in the shape and in the manner of mounting the stylus, always adapted to obtaining the best results in cutting down vertically to produce a record-groove characterized by vertical irregularities; in the construction and mounting of a diaphragm to vibrate to and from the surface of the tablet; and in the complete apparatus, with the same end in view—for instance, in the construction of the carriage for carrying the



recorder-head so as to hold it in position for such operation, in determining the best angle at which the stylus must be presented to the tablet, etc. In all these and a hundred more details, the fact that the diaphragm must vibrate *to and from the tablet* and the recorder must cut *downwards* (to produce vertical irregularities), is always either expressly stated, or (more significant) is plainly in mind and taken for granted as being the *only* way. The conclusion is irresistible that one who follows the course taught him by the patents and other literature of the "engraving" system, would naturally turn his efforts towards producing a vertically-cut record. And "the record of this case clearly establishes the truth of this proposition" (Edison filament case, *supra*). With the exception of the Rosenthal & Frank patent, not a single patent or other publication has been cited that described an *engraved* sound-record characterized by *lateral* undulations of uniform depth, or the method of producing such records.

At this point then (again postponing consideration of Rosenthal & Frank) Jones undertakes to produce an original record of the type commonly known as gramophone, but better than the etched gramophone records; to do so he turns his back squarely on the essential etching step of the gramophone process, and thereby avoids the objections due to that step; and at the same time he turns aside from the idea of cutting *downwards*—the *vertical* engraving, so insistently prominent in the gramophone system. In the vertical engraving of the latter the resistance to be overcome by the recorder varies practically as the *cube* of the vibration length of the stylus—in other words, when a strong impulse is given to the diaphragm, the stylus, instead of making a corresponding deeper cut, makes a cut less deep proportionately (owing to the greater proportionate resistance) than when a feeble impulse is given.

By Jones' process the resistance varies *directly* as the length of the vibration. Jones, then, steers a middle course between the Bell and Tainter and the Berliner systems. He obtains a novel product, an original record similar to—but better than—the Berliner record, and entirely different from the Bell and Tainter record, by a novel process entirely different from the Berliner process, and



though somewhat resembling, yet clearly different from the Bell and Tainter method in that the *downward* cutting—the *vertical* irregularities—are not present, and the resistance is invariably exactly equal to the wave-length or the strength of impulse. In other words by a decided change for the better in one existing process, he produces an article that is entirely different from, and an improvement upon, any article produced by the only two existing methods. Concededly both this original record and the process of making it are *novel*; and, in view of the history and divergent development of the two existing branches of the art, and bearing in mind the doctrine of the Edison filament case, *supra* (C. D. 1892), it must be admitted that the creation of this method and this record involved *invention*. The Examiner has practically acknowledged this by no longer citing any reference except Rosenthal & Frank.

#### ROSENTHAL & FRANK PATENT.

Now, then, if the Rosenthal apparatus, as described in their patent, is capable of producing any record at all, if, in addition, the manner of producing it or the record itself is like or substantially equivalent to the method and record of applicant's present claims 1 and 2, and if the description in their patent alone puts this *same* method and record in the hands of the public, then the patent may be considered a good reference against these claims. But otherwise it clearly is not.

The Rosenthal invention is a machine or apparatus, and the improvements (set forth in the third paragraph of the specification) lie mainly in so constructing and arranging the various parts as to obtain uniform speed of rotation for each portion of the tablet that is passing under the stylus. The description as well as the claims are directed almost entirely to this idea. In fact, the *title* of the patent "correctly indicating the nature of the inventions" (R. S. U. S., Sec. 4885) is "Apparatus for REPRODUCING sounds." The patent goes on to describe a bell-crank lever connected to the diaphragm and carrying a stylus *f*, whose shape and functions are not set forth (ex-



cept in line 17 of page 2), which says it operates to "*indent*"). "The advantage of this lever" (involving the swivel-pin, the screw pivoting the lever thereto, the fulcrum-screw and the clamp) "is that the transmission to the diaphragm of vibrations of the stylus"—due to the extraneous causes—"is prevented." In view of the "unusual stoutness of the diaphragm" (lines 16-17) and the bulkiness and inevitable lost motion of this unwieldy lever, with all its attachments, it would appear that—"The disadvantage of this construction is that the transmission to *and from* the diaphragm of *all* vibrations is prevented. In other words, if the stylus meets with any resistance whatever it will not record."

In line 92, page 1, the patent recites incidentally that the phonogram disc is preferably of *zinc*; and in lines 16-22 of page 2 it makes the bald statement that the "unusual stoutness" of the diaphragm (no information whatever being given as to this stoutness) enables the stylus to "*indent*" the record directly in this (*zinc*) disc. This passage contains the only information given as to how the records are made by this "reproducing apparatus."

When it is recalled that zinc is about twice as hard to indent as lead, *rolled* zinc (the commercial form of the article, and the patent must be construed as intending this ordinary form) being about four times as hard as lead, the Examiner will agree that such resistance would be offered to the stylus that "the transmission to the 'stylus' of vibration of the 'diaphragm' \* \* \* is prevented," if not entirely, yet to a very great extent, and so much so that even if here and there certain irregularities or deviations are produced in the continuity of the spiral groove, it is impossible to obtain any understandable reproduction of sound from them; and therefore as a "sound-record" they amount to a failure.

But even supposing some sort of record be made, how is it made, and what is it? The patent says "*indent*." But as that word is commonly understood it is scarcely appropriate to the action of the stylus *f*. If the stylus *f* does indent, and if the record thereby produced is an *indented* record, that alone is sufficient to differentiate it from applicant's *engraving* method and engraved record.



From the fact that this stylus *f* is shown as conical and tapering to a point, it would appear that its true mode of action is to *scratch*—without removing the material cleanly as in a true cutting operation. So that, in any event, applicant's cutting or engraving method is different from either the alleged "indenting" or the actual scratching method of the patentees.

To sum up: either the Rosenthal apparatus, if operative at all to record sounds, operates in a different manner from applicant's apparatus and produces a different record; or (and this is the strongest probability) it does not operate at all to produce such a record as the specification writer sanguinely states. As to its operativeness—the surest test—the actual subsequent history of the art, shows that in the eight years since the publication of this patent this system has never gone into use. And this is a matter of general and public knowledge.

The truth of the matter undoubtedly is that the patentees, as they correctly stated, constructed an apparatus for reproducing sound, which would in fact reproduce satisfactorily from a suitable record; that they desired and endeavored to adapt the same apparatus for recording also; that they conceived the idea of making a bigger diaphragm and of employing a long and heavy bell-crank lever in connection with it, in the vain hope that such "stoutness" of construction would overcome the insuperable difficulties they had encountered; and that they (or their specification-writer) thereupon proceeded to make the fond statement referred to (lines 16-22 of p. 2). The Examiner knows well that a *large diaphragm*, instead of giving stronger and better vibrations, breaks up into nodes and is utterly worthless for sound-recording purposes. The operativeness of Rosenthal's system of recording depends on the fallacy that an abnormally large diaphragm would give abnormally long and strong vibrations and thereby enable it to overcome greater resistance in making a record. This assumed principle being untrue, their system (so far as *recording* is concerned) must fall with it.

For all the foregoing reasons, it is respectfully submitted that this Rosenthal apparatus (and patent) is not sufficient, either in operativeness or in identity with appli-



cant's invention, to bar the allowance of claim 1. Nor does it anticipate claim 2, which corresponds to former claim 7, against which the only reference cited was Young. In this connection applicant desires to state that not only is the process set forth in his claim 1 (producing the record of his claim 2) carried on by him practically and successfully upon an extensive scale, but he has reason to believe that a large portion of the flat disc records now being made are produced in accordance with his own invention, and that others are appropriating his invention which is beginning to supplant entirely the etching process, but without applicant receiving any benefit therefrom.

#### APPLICANT'S REMAINING CLAIMS.

Claims 3 and 4, corresponding to former claims 5 and 6, set forth the complete process for producing the commercial article. Applicant's claims 3 and 4 are for a properly organized "process," there being an inter-relation between the successive steps of his process analogous to the mutual relations between the elements of a true "Combination" claim. Against these claims the Examiner cited in his last letter no reference but Young.

Applicant's complete process, according to claim 3, comprises the following steps: (1) his new and peculiar method of making the original record; (2) coating this record with a conducting material; (3) forming a matrix thereon by electrolysis; (4) separating the matrix from the original and (5) pressing it into the material.

Young's method involves (1) forming an entirely different original record by a different method; (2) coating it with a conducting material, as applicant does; (3) forming a matrix thereon by electrolysis, just as applicant does; (4) *melting* the original away, and thereby destroying it; and (5) *expending* the material against the matrix.

The significance and importance of the difference between the first step of applicant and that of Young have already been dwelt on in the substitute specification and elsewhere. This difference alone is sufficient to confer patentability upon the claim.

The difference between Young's fourth step and appli-



cant's fourth step is important. Young is *compelled* to melt his original in order to get at his matrix. This application of *heat* and the subsequent cooling have a very injurious effect upon the delicate matrix surface, as the Examiner will readily appreciate ; moreover, by Young's process the original record is destroyed, whereas by applicant's the original record is unimpaired and can be used again and again. In this respect the difference between applicant's process and that of Young is greater than that in the case of *Lawther vs. Hamilton* (124 U. S., 1 ; C. D., 1888, 209). In that case the prior process consisted in crushing the seed between rollers, next grinding with muller-stones, then steaming and finally pressing out the oil. The invention before the Supreme Court consisted in omitting the use of the muller-stones and thereby obtaining better and more oil. The claim—for crushing the seed with rollers and then steaming it and pressing out the oil—was sustained, the Court stating that the omission of one step from an old process, whereby a better result is obtained, amounts to invention. This doctrine was reiterated and the *Lawther* case construed by the same Court in the *Crescent Brewing Co.* case (on page 532 of C. D. for 1888). The "better result" means getting more oil and better oil. Applicant's "better result" means the same—getting better records and more records, since the matrix is not injured and the original is not destroyed, but may be used again.

A third point of difference is that found between the fifth steps of applicant and of Young. Young owing the shape of the record he is dealing with, has to expand his plastic material against the surrounding matrix ; and unless the pressure employed for that purpose be applied with absolute uniformity at every portion of the interior of the plastic cylinder, that material will not be forced into the matrix surface sufficiently at all points, and the result will be worthless as a sound record. Applicant, on the contrary, applies the pressure to his rigid, unyielding matrix which thereby acts uniformly over the whole surface of the plastic tablet. This difference is not a "mere reversal of parts," the function and result are different,



and Young cannot by any disclosed means whatever *impress* his matrix against the enclosed plastic cylinder.

*Claim 4.* The same three points of difference exist between Young's process and the process of applicant's claims 4, and for the same reason this claim also should be allowed.

*Claim 5* sets forth the record produced by applicant's novel process. Such a record is certainly novel itself, while its extensive adoption shows that it is useful and argues its patentability, and it is believed therefore to be allowable.

Applicant requests reconsideration and allowance of all the claims herewith presented.

Respectfully submitted,  
PHILIP MAURO,  
Associate Attorney of Record.

Aug. 13, 1900.

OFFICE LETTER OF SEPTEMBER 7TH, 1900.

Claims 1, 3 and 4 are for methods and claims 2 and 5 are for articles. The articles may be produced by other methods. A division therefore is required, see *ex parte* Fish, 91 O. G., 1615, and the decisions therein cited. It is, however, thought that claims 1 and 2 are met in the patents to Clark and Johnson, #624,625, May 9, 1899, Sound Boxes, Gramophones, see particularly Figures 3 and 4 and the description on lines 26 to 36 of page 2.

These claims are also rejected on the English patent to Goulard #15,206, Sept. 8, 1891, Graphophones.

Claims 3, 4 and 5 seem to cover aggregations of features shown in the English patent to Young of record and the patent to Berliner, #548,623, Oct. 29, 1895, Graphophones, Tablets, Duplicating Devices.

J. T. NEWTON, Ex.



## IN THE UNITED STATES PATENT OFFICE.

Room 219.

Joseph W. Jones.

Method or process of Making Records for the Reproduction of Sound Waves.

Filed Nov. 19, 1897,  
S. N. 659,170.

Responsive to Office Letter  
of Sept. 7, 1900.

Hon. COMMISSIONER OF PATENTS:

*Sir.*—Please amend the above-entitled application as follows:

Substitute specification page 2, line 16, cancel the words: "entirely new article. It is an."

Cancel claims 1 and 2, and change the ordinals of the remaining claims.

Add the following as claim 4.

"4. The process of producing commercial sound records of the type indicated, which consists of first, preparing a flat tablet or disc of soft wax-like material, then engraving thereon by means of the lateral vibrations of a suitable stylus a record groove of appreciable and uniform depth and having lateral undulations corresponding to sound waves, next rendering the surface thereof electrically conductive, then forming a matrix thereon by electrolysis, next separating the matrix from the original record disc without the use of heat, and finally impressing said matrix into a disc of suitable material to form the ultimate record, substantially as described."

## REMARKS.

Present claim 3 has been objected to as being improperly joined with the process claims. Before final action applicant will either file a divisional application or cancel this claim.

Against present claims 1 and 2 the Examiner cites two references, Young and Berliner, both of record. The process set forth by each of applicant's claims is a single unitary, organized process—the various steps each having a certain relation to the other steps and affecting the opera-



tion of the other steps, the whole *series* of steps (constituting the "process") contributing directly to produce a single, unitary result, to wit, an improved commercial sound record.

The Examiner practically concedes that claims 1 and 2 each sets forth a process different in its *entirety* (*i. e.*, as a complete process) from any reference at his command. His letter appears to be an attempt to reject the claim upon the ground of *aggregation* of old elements—because they "*seem* to cover aggregations of features shown in the" references of record. The Examiner apparently proceeds on the mistaken theory that to constitute novelty in a process each one of the various steps that go to make up that process must be new in itself and taken separately; whereas, as a matter of fact, a new combination of old steps operating to produce an improved or better result or article, has frequently been held patentable.

Applicant desires to restate briefly the differences between the claims and each of the two references taken separately, and to show that this process is not a mere "aggregation," but that each step bears a certain definite relation to the other steps, and further, that the mere fact that each step composing his process is not new in itself, does not detract from the merit of the invention—that to select the several steps from a number of existing processes and combine them into one new process whereby better results are obtained, amounts to something more than mere mechanical skill. See *Wallace v. Noyes*, 13 F. R., 172; *Andrews v. Garman*, 3 Blatch., 307, and also *Western Elec. Co. v. T. & T. Co.*, 86 F. R., 769.

The Process Is Unitary, And Must Be Considered As a Whole.

The question of novelty or invention is one of fact, and the line which separates what is termed "judgment" or "mechanical skill" from that which may be regarded as an act of invention is sometimes not easy to discern in a given case. The solution of the question is not to be sought by considering separately the different elements entering into its structure, but the alleged invention is to be viewed *as a whole*, and with reference to what may be accomplished by its



use. In the language of Judge Cox in the case of *Coupler Co. vs. Pratt*, 70 Fed., 624:

"Invention should be determined more by an ascertainment of what the inventor had actually accomplished than by a technical analysis of the means by which the result is attained."

Western Elec. Co. v. T. & T. Co. (p. 774),  
*supra*.

And in this case the Court further referred to *Loom Co. v. Higgins* (105 U. S.); *Mast, Foos Co. v. Dempster Co.* (82 Fed., 333); *Potts v. Greager* (155 U. S., 597), and the Barbed Wire Patent (143 U. S., 275), together with other decisions of the Supreme Court, where an exceedingly slight change, and one that appeared very simple *after* it had been made, was held to be patentable. In the present instance, the end sought, and what the inventor had actually accomplished, is the production of a certain kind of sound-record definitely described as possessing certain advantages of utility and novelty; and while there may or may not be patentable invention in the article itself, there *is* novelty and utility and invention, and therefore patentability, in the *means* employed,—the "means" in this particular instance being the unitary process or method of producing the article. The superior advantages of applicant's sound-record are due and directly attributable to the particular steps selected to constitute his *new process*, and therefore the improvement is found in the process, and therefore applicant has a "new and improved process."

Comparing applicant's system with that of Young, at least five points of difference will be noted: (1) Young employs a cylindrical tablet, while applicant is dealing with a *flat* tablet or "disc," the significance of which difference will appear later; (2) Young produces by the vertical vibration of his stylus a record-groove having vertical irregularities, whereas applicant obtains, by lateral vibrations, a groove of uniform depth and characterized by lateral undulations; (3) Young is forced (by reason of the shape of his record) to employ *heat* to remove



the original record from its matrix ; (4) and for the same reason to employ heat again to expand his blank-cylinder to form his ultimate record, and (5) to resort to still another change of temperature to remove the ultimate record from the matrix,—whereas applicant's process performs these last three steps without any change of temperature whatever, and without destroying the original record.

As to the superior advantage of these several steps in applicant's process ; it may be noted briefly that the employment of a cylindrical tablet entails having to *use heat*—a raising and lowering of temperature—which (after a few duplicates have been made by means of the matrix) seriously mars and defaces the matrix-surface. This is doubtless one of the reasons why this method of Young has never been practically successful. In the next place, in making a vertically engraved record, the resistance varies practically as the cube of the vibration-length, whereas in applicant's system the resistance varies directly with the vibration-length, which insures a more accurate record. In the next place, in dealing with a vertically-irregular record groove, the depositing of plumbago or the like misforms and renders incorrect a sound-record whose essential characteristic lies in its relative heights and depths ; anything that tends to affect relative elevations, to that extent distorts the record and renders it worthless *as a sound-record*.

The foregoing remarks indicate sufficiently the inter-relation and the mutual dependence of the various steps of applicant's process. In the beginning the wax of disc form as distinguished from a cylinder or a metal plate, has relation forward to the *not having* to employ heat and not having to etch (as in Berliner) ; the lateral irregularities, instead of vertical, as relation to the more ready and accurate production of the same, also to the next step of depositing plumbago, and also to the accuracy and safety to the original in making an electroplate and afterwards an impression, and the ease in separating the counterparts.

Applicant's process differs radically from Berliner's in that applicant omits any etching with all its attendant dis-



advantages ; and, further, in that (having made his record-groove of exact size and full depth in the first instance) he does not have to scratch over it afterwards with a graver's tool, as in the Berliner system. Applicant's record is "smoother" and more accurate in its reproductions than Berliner's because the aberrations due to etching, etc., are not present, and the deformations due to the graver's tools are avoided. Accuracy and "smoothness" (*i. e.*, absence of foreign scratching sounds) are the ideals of a sound-record, and as applicant has made remarkable improvement in this direction, and as the difference may be directly traced to the novelty of his process, the *process* is the invention and is the thing that is patentable. See Rob. Pats., Sec. 160, and notes.

The Examiner's attention is invited to Crane's patent for the manufacture of iron (1 Webs. Pat. Cas., 375, 409). Before Crane's invention, the use of a hot air blast with bituminous coal was well known, and the use of cold blast with anthracite coal was also well known. Crane used, and claimed, the process of employing the *hot* blast and *anthracite* coal. Because he thereby produced a better article, the process claim was sustained.

The Court did not undertake to say that Crane "seemed to claim an aggregation of old things." A similar case is *Halliwell v. Dearman* (1 Web. Pat. Cas., 401), in which the patentee treated fabric with successive immersions in two different solutions, whereas, formerly the practice was to mix these old solutions in one. The patentee's process produced a better article, and his patent was sustained. Applicant would further request the Examiner to reconsider the cases cited in former letters, particularly *Lawther v. Hamilton* (124 U. S.), and the distinctions and grounds for novelty heretofore pointed out.

Applicant is strongly convinced that he has invented a patentable process, and respectfully requests careful reconsideration and allowance of his claims.

Respectfully submitted,

PHILIP MAURO,  
Associate Attorney of Record.

Dated Nov. 10, 1900.



OFFICE LETTER OF NOVEMBER 21, 1900.

It is obvious that under the statute a process claim, as well as a claim covering a mechanism, must to be patentable, cover a process that is the result of the exercise of invention.

In so far as the present process is concerned it seems to be immaterial in a patentable sense whether the undulations be lateral or radial, for both are equally common, and it being old to form a record having record grooves with radial undulations by a given process, old for instance in Young's patent, it would not constitute patentable invention to form a record having grooves with lateral undulations by so slight a modification of Young's process. It seems also to be immaterial in a patentable sense whether the matrix be separated from the original by heat as in Young's patent, or by any other well known means or common expedient.

Whether the record be a disc or a cylinder is also believed to be immaterial in a patentable sense. The claims are rejected for want of invention in view of the art disclosed.

J. T. NEWTON, Ex.

J. H. L.

IN THE UNITED STATES PATENT OFFICE.

Room 219.

Joseph W. Jones.

Method of Process of Making Records for the Reproduction of Sound Waves,

Filed Nov. 19, 1897,

S. N. 659170.

Responsive to Office

Letter of Nov. 21, 1900.

HON. COMMISSIONER OF PATENTS :--

*Sir.*—Please amend the above-entitled application as follows:

Change the title of the Invention to "Production of Sound-Records."

Cancel claim 3 (originally presented as claim 5 in amendment of August, 1900); and change the ordinal of claim 4 (presented in amendment of Oct. 25) to "3."



## REMARKS.

The several official letters herein have presented various grounds of objection which have been fairly met by previous arguments.

In official letter of April 11, 1900, the ground taken was that the only difference over Young lay in applying his (Young's) process to a flat tablet having a zig-zag record groove of even depth. In reply it was shown that there were numerous and important points of difference between applicant's process and that of Young; and the reference to Rosenthal & Frank patent was also disposed of.

By official letter of Sept. 7, 1900, the objection urged to the process claims was that they covered aggregations of Young and Berliner. In reply we pointed out at length and (we think) very clearly that each step of applicant's process sustained a direct relation to the other steps, and that the new result obtained was due to the joint contribution of the several steps performed in the manner set forth. Ample authority was cited to sustain our position on this point. (Argument of October 25, 1900.)

Finally by official letter of Nov. 21, 1900, the process claims are rejected on the ground that they are not "the result of the exercise of invention," it requiring no invention, in the Examiner's opinion, to modify Young's process in such manner as to arrive at appellant's process. Such an assertion is always easy to make, and always difficult either to prove or disprove. When a result is seen, and the road to it pointed out, it is easy to suppose that the road is one which anyone might have found. Nevertheless, we think, in the present case, the objection of no invention is one that will not lie, for several convincing reasons.

In the first place the Examiner has seen the result achieved by applicant and has had proof that it is a practical sound-record of improved quality. On the other hand it is known that the process of Young, with the directions given by him, and the knowledge and skill then existing in the art, was incapable of producing any practical result, and never did. In every case where the question has arisen, the difference between means



which resulted in failure and means which resulted in success, has *always* been held patentable, and to involve invention. If, after the Young process had been known for a number of years, and been wholly unfruitful, a later discoverer should have found that by a change so slight as starting with a *zig-zag* record instead of a vertically undulating record, he could produce a useful sound record, he would be an "inventor" in the sense of the law, for he would have produced a new result. In such case it is the result that is looked to rather than the *extent* of the change; and as a rule the slighter the change necessary to turn failure into success, the more difficult is it to detect, and the more *invention* required to determine it. But, as has been frequently pointed out, applicant has done *much more than this*.

Furthermore, it is a matter of fact which must be obvious to the Examiner, that applicant's result was obtained only after much experiment of an elaborate and delicate character. After conception of his process, demonstration was required, for certainly no one, with only the light afforded by Young's patent, could say that the steps performed by applicant would produce a practical sound-record. This fact is a conclusive answer to the objection of no invention.

Again, applicant is the very first person to employ a cut or engraved record of uniform depth in *any practical or commercial way*. This we think is very important. The idea of making and utilizing such a record must have existed in many minds ever since the Bell & Tainter patent; but it had remained undeveloped and unemployed. That the whole process of making a zig-zag record in hard material could be simplified, the entire etching operation with all its expense and difficulties cut out, and a *better result* obtained by going back to the starting point, and beginning by engraving a record of uniform depth, was an inventive idea of conspicuous merit; the more so because the operation of electro-plating the ordinary engraved record had never been successfully carried out. This was a clear departure, of a radical kind, from existing practice and experience, and unquestionably involved invention.

Whether the matrix be separated by *heat* or by other



means, may make all the difference between obtaining or not obtaining the desired result. The important point in this connection is that Young's process requires, at two places, the use of heat, which destroys the original record and impairs the result of the whole process. The difference is therefore a very important one.

The difference between the use of a disc and of a cylinder standing alone, might not seem very important and yet it might require the insight of an "inventor" to discover that a process useless with the one is useful with the other. This difference, however, does not stand alone, for applicant's process differs otherwise materially from Young's.

We submit, therefore, that the objection of no invention is not supported, but on the contrary is refuted by all the material facts and considerations. The invention here presented is a veritable improvement in the art, ranging far higher in merit than many patented inventions. It is an art in which slight differences have been, and should be, recognized as patentable.

We submit, therefore, that applicant has demonstrated a *prima facie* right to a patent, and should receive the same liberal treatment as has been accorded others whose inventive efforts have been less deserving.

Applicant has been required, in consequence of the many objections raised, to develop with unusual fullness the facts and reasons supporting his demand for a patent, and we believe the Examiner should now be amply satisfied that the invention is not only new and useful, but clearly of patentable character.

Respectfully submitted,

PHILIP MAURO,

Asso. Atty.

Feb. 2, 1901.

OFFICE LETTER OF FEBRUARY 23, 1901.

Action on this case in reply to the applicant's argument and amendment filed February 2, 1901, has been suspended awaiting a demonstration of the superior excellence of his records which demonstration was promised by the attor-



ney, but fearing that the matter has been overlooked, he is given ten days from this date to make such demonstration, and if not made within that time this case must be acted on without such demonstration.

The applicant's attention is also directed to figure 20 of the English patent to Giroud, No. 15,206 of 1891, Graphophones, which shows a wax record engraved by a stylus moving laterally as contradistinguished from vertically. The position of the office is that to substitute such a record for the record of Young, which was probably a record made by vertical undulations, is not patentable.

WM. J. RICH,  
Acting Examiner.

IN THE UNITED STATES PATENT OFFICE.

Room 219.

Joseph W. Jones,

Production of Sound Records,

Filed Nov. 19, 1897,

S. N. 659,170.

State and County of New York, ss.:

JOSEPH W. JONES, being first duly sworn, deposes and says he is the applicant named in and who executed the above-entitled application. That he annexes hereto as an exhibit sound-record entitled "She is a sensible girl, Baritone solo, 232," which he himself made by the method or process set forth in his said application, the same being marked with his initials, and the date hereof.

Deponent further particularizes, this exhibit record was made by me in the following manner: the original record was engraved directly into a comparatively soft wax-like composition, in my presence, and under my directions. I then applied a minute coating of black lead to the surface of this original engraved wax record; placed the same in an electroplating bath, and electroplated it with copper; next removed it from the bath and separated the original wax tablet from the copper electroplate matrix. The matrix was impressed into the red fibrous tablet constituting



the exhibit herewith, and the exhibit record was produced under my directions. This record was made as above-described, about eighteen (18) months or two years ago, and has been used a great number of times.

Annexed thereto for comparison with my improved record is another record made about the same time therewith by the old etching process. This latter exhibit is identified as "Jones Exhibit, etched record."

JOSEPH W. JONES.

Subscribed and sworn to before me }  
this 21st day of February, 1901. }

WILLIAM E. HILLS,  
[SEAL.] Notary Public,  
New York County.

OFFICE LETTER OF MARCH 8, 1901.

This case has been carefully considered in view of the amendments of February 2, 1901. The personal interview of the attorney and the affidavit and exhibits received February 26, 1901, and claim 2 must be rejected on the references of record, particular attention being called to page 1, lines 31 to 40 of the patent to Berliner, which would alone seem to anticipate this claim.

J. T. NEWTON Ex.

IN THE UNITED STATES PATENT OFFICE.

Room 219.

Sr. No. 659,170, Filed Nov. 19, 1897.

Jos. W. Jones,

Method or Process of Making Records, for the Reproduction of Sound-Waves.

Responsive to Office  
action of Mar. 8, 1901.

HON. COMMISSIONER OF PATENTS :

*Sir.*—Please amend the above-entitled application as follows :



Cancel claim 2, and renumber Claim 3 as claim 2.

Respectfully submitted.

PHILIP MAURO,  
Atty.

Mar. 14, 1901.

The Examiner's attention is respectfully called to the fact that in the amendment of Feb. 2, 1901, the title of the invention was changed to "Production Of Sound-Records."

OFFICE LETTER OF MARCH 28, 1901.

Official action in the matter of this application is suspended under the provisions of Rule 96, for fifteen days from date. At the expiration of the period of time specified, applicant is requested to call this case up for action.

J. H. L.

J. T. NEWTON, Ex.

IN THE UNITED STATES PATENT OFFICE.

Room 221.

Sr. No. 659,170.

Filed Nov. 19, 1897.

J. W. Jones.

Mfg. of Sound Record.

Hon. COMMISSIONER OF PATENTS :

*Sir.*—The fifteen days for which this case was suspended by official letter of March 28th having expired, the Examiner is called upon to take the case up for further action.

Respectfully,

PHILIP MAURO,  
Attorney.

April 13, 1901.



## Interference.

2-213.

J.H.D.

Copies sent both Assignees,  
Department of the Interior,  
United States Patent Office.

WASHINGTON, D. C., Apr. 17, 1901.  
#21,102.

JOSEPH W. JONES,—Assor to self and JOSEPH A. VINCENT,  
Care PHILIP MAUNO, Phil., Pa.  
Washington, D. C.

Please find below a copy of a communication from the Examiner concerning your application for Method or Process of Making Records for the Reproduction of Sound Waves, filed Nov. 19, 1897, serial number 659,170.

Very respectfully,

F. L. ALLEN,  
Commissioner of Patents.

Room No. 219.

Your case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before the 10th day of May, 1901, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

The herein described method of producing sound-records which consists in cutting or engraving upon a tablet of suitable material, by means of the lateral vibrations of a suitable stylus, a record-groove of appreciable and practically uniform depth and having lateral undulations corresponding to sound-waves, next coating the same with a conducting material, then forming a matrix thereon by electrolysis, and finally separating this matrix and pressing the same into a tablet of suitable material.

The foregoing count is your claim 1, and is claim 7 of an application of Emil Berliner of Washington, D. C., for



Tablet A, having its electro-conductive coating A<sup>1</sup>, is immersed in a plating bath C<sup>1</sup> (Fig. 3), by which a (copper) matrix or reverse C is formed.

Matrix C is laid on a tablet D of suitable material in a press E, and the finished product produced."

REMARKS.

The above amendment is made in response to the suggestion contained in official action of Nov. 12th, 1901.

Respectfully,

PHILIP MAURO,  
Attorney.

Nov. 19, 1901.



Gramophone Sound-Records and Method of Making the Same, whose attorneys of record are Lyons & Bissing, McGill Building, Washington, D. C.

J. T. NEWTON, Ex.

J. H. L.

OFFICE LETTER OF NOVEMBER 12, 1901.

It is requested, if he can conveniently do so, that applicant furnish a drawing of matter described and claimed, for the purpose of more ready reference.

J. T. NEWTON, Ex.

J. H. L.

IN THE UNITED STATES PATENT OFFICE.

Room 219.

Sr. No. 659,170, Filed Nov. 19, 1897.

Production of Sound Records.

Jos. W. Jones.

HON. COMMISSIONER OF PATENTS :

*Sir*.—Please amend as follows :

Page 3 of the substitute specification, between lines 13 and 14 insert :

“ In the drawings annexed hereto to illustrate this invention,

Fig. 1 shows a recorder in the act of producing the original record ;

Fig. 2 shows the original record partially covered with graphite ;

Fig. 3 shows diagrammatically the electro-plating apparatus for forming the metallic matrix on the original record ; and

Fig. 4 shows a press for forming stamped records from the matrix.

A is a tablet of wax-like composition, B a recording device whose stylus *b* cuts or engraves into the surface of tablet A a line or groove or chamber *a*, of uniform depth and undulating laterally. The shaded portion A<sup>1</sup>, Fig. 2, represents the graphite coating applied over surface of A.



66

2-327.

MEMORANDUM  
of

FEE PAID AT U. S. PATENT OFFICE.

(Be careful to give correct Serial No.)

Serial No. 659,170, 1897.

Inventor :

J. W. Jones.

Patent to be issued to Inventor.

Name of Invention, as allowed :

Mfg. of Sound Records.

Date of Payment :

November 21, 1901.

Fee :

\$20.

Date of Filing :

Nov. 19, 1897.

Date of Circular of Allowance:

Nov. 21, 1901.

The Commissioner of Patents will please apply the accompanying fee as indicated above.

PHILIP MAURO,  
Attorney.

Send Patent to

PHILIP MAURO,  
# 620 F. St.  
Wash., D. C.



Issue Division.

DEPARTMENT OF THE INTERIOR.

Washington, D. C., Nov. 22, 1901.

JOSEPH W. JONES, Assor.

Care Philip Mauro,  
City.

*Sir.*—Your application for a patent for an improvement, Production of Sound Records, filed November 19, 1897, has been examined and allowed.

The final fee, Twenty Dollars, having been received, the Letters Patent will be forwarded in due order of business.

Additional copies of specifications and Drawing will be charged for at the following rates: Single copies, uncertified, 5 cents each. The money should accompany the order.

Very respectfully,

F. I. ALLEN,  
Commissioner of Patents.

1897.

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- 15 .....
16. Letter.....March 8/01.
17. ....
18. Letter.....Mar. 28/01.
19. ....
20. — with  $\frac{1}{3}$ .....April 17, 1901.
21. Letter.....Nov. 12/01.
22. ....
23. ....

Title:

Improvement in Production of Sound Records.



1768 Judge Carr

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**United States Circuit Court of Appeals**  
**FOR THE SECOND CIRCUIT.**

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THE AMERICAN GRAPHOPHONE COMPANY,  
*Complainant-Appellee.*

vs.

THE UNIVERSAL TALKING MACHINE MANUFACTURING  
COMPANY,  
*Defendant-Appellant.*

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APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES  
FOR THE SOUTHERN DISTRICT OF NEW YORK.

---

**Brief for Complainant-Appellee.**

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PHILIP MAURO,  
C. A. L. MASSIE,  
277 BROADWAY,  
New York City,  
*Of Counsel.*

---

C. G. BURGONNE, Walker and Centre Streets, N. Y.

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## MEMORANDUM FOR COMPLAINANT.

The question before this Court is not whether upon the evidence in the transcript they would have granted the injunction (C. App. D. C., in *Rosell vs. Allen*, 92 O. G., 1036); but, whether or not there was *abuse of discretion* by the Court below. Hence, if *reasonable ground* for the action of the Court below appears in the transcript, the order will not be reversed.

### Authorities.

In *Proctor & Gamble Co. vs. Globe Co.* (92 F. R., 367), the Court of Appeals for the Sixth Circuit said :

“ This being an appeal from an order denying a preliminary injunction, the question to be determined is whether the discretion of the court below was improvidently exercised, and not whether upon the final hearing, upon full view of all the facts in the case, this Court would, upon the evidence before it, reach the same conclusion as that of the court below (*Duplex Printing Press Co. vs. Campbell Printing Press & Mfg. Co.*, 16 C. C. A., 220, 69 Fed., 252; *Garrett vs. T. H. Garrett & Co.*, 24 C. C. A., 173, 78 Fed., 472). To justify this Court in reversing an order of this kind, it must be *quite clearly apparent* that a mistake was committed by the court below.”

In *City of Terre Haute vs. Farmers' Loan and Trust Co.* (99 Fed., 838) the Court of Appeals for the Seventh Circuit refused to reverse the order of the Court below (refusing to dissolve an injunction) on the ground that,



although the questions of law and fact raised in the case were numerous, these should not be passed upon, but "left to the untrammelled consideration of the Court below at final hearing."

The Court said :

"There is no controlling and unquestioned proposition of law or fact on which it can be said that the interlocutory order is clearly wrong and ought to be set aside."

And, again :

"The bill made, at least, a *prima facie* case for the granting of the interlocutory order, and the showing on the motion to dissolve, at most, left the question fairly within the discretion of the court."

The Circuit Court of Appeals for the Fifth Circuit, in an important case (*Workingmen's Amalgamated Council vs. United States*, 57 Fed., 85), wherein "the conflict of testimony was sharp and emphatic," declined to set aside an order for an injunction *pendente lite*, on the ground that "such an order should not be reversed unless it is made *clearly to appear* that it was improvident and hurtful to the appellants."

The Circuit Court of Appeals (Sixth Circuit) in *Thompson vs. Nelson* (71 Fed., 339), followed its decision in the Duplex Printing Case, and declined to reverse the order of the Court below, because they could not find "that the sound judicial discretion of the court in granting or withholding a preliminary injunction was improperly exercised," citing authorities.

In *Ritter vs. Ulman et al.* (78 Fed., 222), the Court of Appeals (Fourth Circuit), held that an appellate court would not interfere with the exercise of the discretion of a Chancellor in refusing to dissolve an injunction, either absolutely or upon condition of giving security, unless there is manifest error in the conclusion reached by him.

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A pertinent and well considered decision on the same question was rendered by the Court of Appeals for the Ninth Circuit in *Southern Pacific Company vs. Earl* (82 Fed., 690), from which we quote :

"Inasmuch as the granting of an injunction *pendente lite* is committed to discretion of the trial court, it necessarily follows—and so the authorities uniformly hold—that upon an appeal from such an order the only question which the appellate court is called upon to determine is whether the court in making such an order abused its discretion. If there was before the court evidence having a reasonable tendency to make out a *prima facie* case for the plaintiff, the order granting the injunction will generally be affirmed, notwithstanding there may have been a material conflict in the evidence submitted to the court at the time of making its order, or, stating the same rule in different words, the decision of the judge who made the order will not be reversed unless it appears, after consideration of all the evidence upon which his action was based, that his legal discretion to grant or withhold the order was improvidently exercised."

The rule generally adopted by the Circuit Court of Appeal has been followed by the Court of Appeals for the District of Columbia in *Standard Oil Co. vs. Olser*, 11 App. D. C., 80; and *Electric Lighting Co. vs. Met. Club*, 6 App. D. C., 536-544.

In the last cited case the Court say :

"We should not lightly disregard the action of the court below, or reverse that action unless it is made *very plain* to us either that such action was erroneous or that it is in the interest of justice that it should be vacated."

This case was followed in *Oil Co. vs. Olser*, *supra*.

See, also,

*Blount vs. Societe*, 53 Fed., 98.



Georgia vs. Braisford, 2 Dall., 402.  
 Southern Pac. vs. Earl, *supra*.  
 Jensen vs. Norton, 64 Fed., 662.  
 Pacific Whaling Co. vs. Alaska Assn., 91 O.  
 G., 1803.  
 Dimick vs. Shaw, 94 Fed., 266.  
 Loew Filter Co. vs. German-Amer. Co., 107  
 Fed., 949, 951.

### Evidence as to Defendant.

The bill was filed March 17, 1902, and on April 11, twenty-five days later, Jones bought the two Exhibit Zonophone Records. At the same time he got Defendant's Catalogue (Jones Exhibit, Defendant's Record Catalogue, folio 127), in which these two records *had already* before that time *been listed* (as articles defendant was selling and preparing and threatening to sell).

This catalogue on its face bears the legend: "Complete List, March, 1902, Superseding all Previous Issues."

On page 114 (Qs. 3, 4, 5, 6) Cheney says that *for "a year and a half"* he has been making for defendant records produced from original sound records made in his soft tallow composition. And (Q. 8) that *during this year and a half* he has followed *always the same system* in making sound-records. See, also, Cheney's affidavit on page 102, folio 304, in which he had already told us he makes his records in this manner.

In Q. 69 (p. 123) he says he is using the same recording tool he had used a year and a half ago.

Again, in Qs. 77 and 78 (p. 124), he says he has employed *the same method* and practically the same material *throughout the year and a half*.

On pages 154-5, he practically admits that the two zonophone records (Complainant's Exhibits) are of his make (see Qs. 289, 291, 295, 299).

And although Cheney had finally told us of *four* different systems, yet on page 158 (Q. 321) he says the larger portion of his records are made from this tallow-composition tablet.

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To sum up, the larger portion, if not practically *all* his records, for a year and a half past, have been made in the same manner, in which the two Exhibit Zonophone Records were made; if these two articles are held to be infringements, then the same infringement has been going on for a year and a half, or for over a year before the bill was filed.

In the second place, the Exhibit Defendant's Catalogue shows that defendant is preparing and threatening to commit an infringement.

"In order to support a motion for an injunction the bill should set forth a case of probable right, and a probable danger that the right would be defeated without the special interposition of the Court."

Georgia vs. Braisford, 2 Dall., 402.

This decision has been widely quoted and followed (see *Southern Pac. Co. vs. Earl, supra*).

### Infringement.

The principal question in this case is whether the Court below plainly erred in holding that the evidence presented is sufficient to establish infringement by the defendant.

The evidence as to the precise details of the operation whereby the defendant makes its original sound-record is wholly under the control of defendant, who has taken every pains to close the door upon that evidence as tightly as possible. The situation presented to the Court is that the operation carried on by defendant is a "secret process," and not only a secret from the world, *but even a secret from defendant itself*. A workman in the employ of defendant, one George K. Cheney is the sole repository of this "secret" (T., p. 109, fol. 325). Cheney says that these processes are "secret processes known *only* to deponent." Again (p. 101, fol. 303):



"All of the original records are made by a process of my own, *the details of which are known by no one else.*"

The defendant, therefore, is in this position. It engages an irresponsible person to make sound records by a process whereof the defendant and its responsible officers are totally ignorant, evidently preferring the bliss of ignorance to the folly of wisdom in this instance. Defendant, therefore, says to the Court that it does not know whether it infringes or not, that no one knows but Cheney, and Cheney, obedient to his instructions, refuses to answer any and every question tending to disclose the truth of the matter.

We, therefore, have the defendant in the attitude of not denying infringement, but relying implicitly upon the word of an employee that he is making the records by a non-infringing process, at the same time giving that employee rigid instructions, enforced by counsel when the former is on the witness stand, not to let one word escape him which might tend to show that his individual view of the question of infringement is erroneous.

How much reliance can be placed on Cheney's judgment of this question may be inferred from his statement (T., p. 109, fol. 325) that the alleged secret processes "*are deponents' stock in trade, and his means of livelihood.*"

The Court, therefore, will hardly substitute Mr. Cheney's judgment for their own, provided there is sufficient evidence from which a conclusion can be reached. We will now look to the evidence presented by the transcript, and will show that it is ample, and more than ample, to sustain the conclusion of the Court below. A very important feature of that evidence is the deposition of Cheney himself.

The engraving process of the patent in suit first gave to the world serviceable sound-records. Not only that, but it is the only process in use to-day, unless Cheney's "secret" is substantially a different process. There was in use, some years ago, another process of making zig-zag records, but its results

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were very unsatisfactory, and it has been abandoned for the engraving process. This other process was known as the "etching process." It concerns us only because it is the only known process, other than the engraving process, whereby sound-records have ever been made commercially. The expert affidavits of Mr. Jones and Mr. Cameron show conclusively that defendant's sound-records are not made by the "etching" process, and this is admitted in Cheney's affidavits and deposition (T., p. 114, Q. 5 ; p. 148, Q. 255). In the latter part of 1900, the president of defendant's predecessor (the Universal Talking Machine Co.) applied to complainant for the terms of a license, stating that his company "was experimenting with a view to making zig-zag records by the engraving process" (Easton, p. 55, fol. 164). Cheney was the record maker of that company (p. 138, fol. 413). There is no denial of this statement of Mr. Easton's; though one Crandall (who had nothing whatever to do with the negotiations), an officer of the defendant company (the *Manufacturing Company*), says that the *defendant* made no overtures to complainant, but that the overtures came from the latter; but Crandall is here referring to negotiations of a much later date. We shall produce in Court, and read if permitted, the letter of Mr. LaDow, president of the Universal Talking-Machine Co., dated November 10, 1900, and showing the preparation of that company to use the engraving process.

We thus see the company which then made the records (and apparently still does, for Cheney says that he is still its employee) about to employ the engraving process, and intending to apply later for a license, which it never did. Now, when we find the defendant (or its associated company) about to change its methods and abandon the etching process for something else, and when we find it cautiously feeling its way to the safeguard of a license from the owner of the only successful method, and the only other practical method; and when we find later that it actually *has* changed its method and blows its horn in



public print about "an entirely new process evolved from an accidental discovery in our laboratory" (Ex. pamphlet "The Zonophone is the Best Talking Machine;" see T., p. 53), we have a pretty strong indication that the departure is from the etching process to the engraving process.

The attitude of the defendant and its record-maker Cheney confirms this indication, and the other facts now to be presented raise it to the plane of demonstration.

The experts, Mr. Jones and Mr. Cameron, by their examination of defendant's records, not only exclude the etching process completely, but they show that an engraved record has certain characteristics which are perpetuated in the copies made therefrom, and by which its identity can be established.

Mr. Jones, after describing how the engraving process is employed in making hard disk records, says (p. 41):

"This engraving process likewise imparts its characteristic peculiarities to the ultimate record, so that an examination of the latter will disclose the method employed in producing it. The turning down of the waxlike surface preparatory to engraving the record therein produces a series of concentric markings, always more or less visible to the naked eye. In this respect the sound records produced by this method (since this peculiarity is transmitted to the matrix and then to the record itself) differ entirely from those produced by the etching process; records by the etched process have a perfectly smooth, flat central surface; records produced by the engraving process show the concentric markings.

"In the second place, in making the original wax-like record of this type by the engraving step just described, the lettering is produced by impressing a heated stamp into the surface of the waxlike tablet. The effect of this is to produce a depression with a polished bottom and a slight

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marginal raise or ridge. This peculiarity is retained in the matrix, of course in reverse, and is faithfully and accurately represented in the ultimate record. And in this respect also records made by the two methods may be distinguished: Records whose production involves the waxlike material and the engraving step will bear lettering characterized by a smooth and polished bottom or floor with a slight marginal raise or ridge around the contour of each letter."

He points out that these tell-tale characteristics are plainly exhibited in the exhibit records of defendant.

Mr. Cameron (p. 46, *et seq.*) confirms and amplifies this, and finds, as a fact conclusively established by the internal evidence presented by the exhibits themselves, that they were made by the engraving process of the patent in suit.

This would ordinarily be conclusive in a case where the defendant screens himself behind the shield of alleged secrecy, and the more so when the defendant claims that he does not himself know how his own articles are made; but there is much more to support our position.

*No one on behalf of defendant denies either that its records present the characteristics described by our experts, or that those characteristics are identifications of the engraving process and the engraved sound record.*

None of the replying affidavits disputes in the least either the premises or the conclusion. On the contrary, Cheney, when put on the stand by complainant, admitted that the characteristic markings above referred to were found on the records made by him for defendant (p. 153, Q. 285 *et seq.*). When asked how he accounted for those markings he replied, as to every crucial question, "I decline to answer" (p. 155, Q. 294).

The further evidence on the question of infringement is in the affidavits and deposition of the witness Cheney. Nothing short of the reading of the entire deposition will give the Court an idea of the shiftiness,



evasion, lack of candor, and general unreliability of this witness. Such reading must bring this Court to the conclusions of the Court below (T., p. 167), namely, that

"the circumstantial evidence presented by the markings on the discs was most persuasive; it was difficult to understand how it could be possible that the effect could be produced in a substance so soft it could be pushed aside without cutting or removal"; and that

"The evidence which has now been presented by the defendant, many questions quite crucial in their character not being answered, does not overcome the case made by the exhibits and the affidavits presented on the original motion."

The evidential matters found in Cheney's deposition are of two sorts, consisting (1) of what he says and (2) of what he does not say.

The information which Cheney imparts is strongly confirmatory of the conclusions stated by complainant's experts. He tells us that he uses the same materials (tallow or stearic acid being the principal ingredient) as ordinarily used in making engraved sound records:

"In making the original record I use a plate of soft composition composed mainly of tallow and other ingredients the details of which and the proportions I do not care to specify, as the same is a secret known only to me. It is a soft, *saponified* composition," etc. (p. 102).

Saponified compositions of stearic acid are the materials ordinarily used in this process, and the witness here points to no distinction except such as may reside in the adjective "soft."

This tallow composition is formed into "plates or tablets for recording" (p. 115, Q. 11).

The witness refuses to state the thickness of the

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tablet, at first evading upon the pretext that he never measured it (Qs. 11-16).

He refuses to state how the tablet is smoothed preparatory to recording (Qs. 18-23).

Next we learn that the recorder employed in making the record has a diaphragm, stylus (or "recording tool") and feed mechanism (p. 119, Qs. 30-34).

Further we learn that the stylus, during the operation of recording is "*embedded in the tallow composition, and produces a track or groove therein*" (Q. 35).

Here then we have all the conditions of the Bell & Tainter process. What chiefly distinguished their invention from the old art was that, instead of a stylus resting upon the *surface* of and *indenting* or bending a pliable sheet (tin-foil) into a groove lying beneath it, the stylus was *embedded in* an amorphous composition of *slight* cohesiveness, and formed a groove or track therein.

Now this witness wishes the Court to believe, because (as he says) his livelihood depends upon it, that, with the same kind of recording-material and with the recording-tool embedded therein, he makes a sound-record without employing the Bell & Tainter process. The distinction which he wishes to suggest to the Court is that, in his operation, the material removed to form the tiny track or groove, is not carried away from the tablet, but remain thereon or therein. As to this the witness says :

" Q. 57. What becomes of the material that had occupied the space where your grooves are gouged out ?

" A. It is displaced and pushed to one side.

" Q. 58. How do you get rid of it? Do you have an apparatus or contrivance of some sort for blowing it away?

" A. There is nothing removed to blow away.

" Q. 59. Where is it lodged?

" A. I don't know. There is nothing comes off the tablet.



softer than is customary, and, if that difference in softness *does* produce a substantially different result, he could demonstrate it without disclosing more than he has already disclosed.

### Prior Adjudications.

There has been general public acquiescence in the validity of these claims (Bill, T., p. 5, fols. 13, 14; p. 6, fols. 17-19). In paragraph 9 of the bill it is shown that the Edison Phonograph Works (well known in connection with the name of Thomas A. Edison), after an arduous contest, agreed to an injunction sustaining the validity of our patent in *all respects* and accepted a license thereunder.

The same paragraph 9 (T., fols. 18, 19) sets up other adjudications, both reported and unreported. In Graphophone Co. vs. Walcutt (87 F. R., 556), claims 7, 10, 17 and 18 (here involved) were directly in suit and were sustained. This case was again heard on contempt proceedings (86 F. R., 463). In the Walcutt suits the defense was conducted by the same patent counsel who has been acting for the Universal Co. and is now solicitor and of counsel for the defendant. This shows that defendant has all along known of the existence of our patent, and of the scope and validity attributed to these four claims by the Circuit Court.

In Graphophone Co. vs. Amet (74 F. R., 789), claims 22 and 24 of the patent were found valid; and in same vs. Leeds (87 F. R., 873), *inter alia*, claims 19, 20, 21, 22, 23 and 24 were sustained. While none of the four claims involved on this appeal was directly involved in the Amet case or in the Leeds case, yet the *invention* of the present claims was directly involved. The claims presented in those two suits were for the combination of two elements: one a reproducing-device, and the other the sound-record of the four claims before this Court. Judge Grosscup (in the Amet case) doubted the patentability of the reproducing-element of the claims before him, but sustained the claims because he



" Q. 60. Is it crowded into the wall between the grooves ?

" A. Yes.

" Q. 61. Is the height of these walls raised above the average surface height of the tablet ?

" A. I think it is a very little.

" Q. 62. If this be correct, would the height of the walls in the ultimate commercial record be correspondingly elevated above the average height of the remainder of the record surface ?

" A. Yes ; on most of them you will find them, on some you won't—it depends on the recording tool."

Now, it may conceivably be, though unlikely, that the recording tool, acting like a ploughshare, lays the tiny thread of material removed by it (which is less in dimensions than the diameter of a hair) upon the blank spaces between the contiguous grooves. If this be true, the process is obviously one of engraving or gouging, as described in the patent. The witness says he does not know where this gouged-out material is lodged (Q. 59). If not, he cannot deny our contention.

At this point the false pretense which this man is put forward to swear to as a shield for the defendant becomes clearly apparent. He has disclosed enough to show that he could satisfy the Court fully upon the question at issue without betraying any secret. His meaning, if it can be discerned at all, is that his recording stylus simply pushes or crowds the displaced material aside, possibly increasing the density of the mass adjacent to the grooves, or possibly raising the height of the walls. Plainly, the witness, having told all this, has nothing to hold back, provided he is telling the truth. All he would have to do would be to show the thing corresponding to his words.

From this we may deduce with reasonable certainty that Cheney, in his secret manufacture of sound-records, employs an operation identical with that described in the patent ; and that, if he *does* actually use the recording material in a condition materially

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found the sound-record itself to be new and patentable. Judge SHIPMAN, after final hearing in the Leeds case, followed this same view, basing his decision squarely upon the novelty and patentability of the engraving method and the engraved sound-record.

Thus claims 7, 10, 17, and 18 have been expressly and directly sustained by the Circuit Court for the Southern District of New York, and against defendants who were represented by the same counsel now appearing for the present defendant-appellant; while the *invention* of these same claims has been sustained *of necessity* in New York and in Chicago, because the decision sustaining certain other claims of the patent expressly state that the ground for such decision was the novelty of that particular feature of the combination in those other claims which is set up by the four claims here involved.

#### Our Hard Disc-Records.

Paragraph 10 of our bill (T., p. 7) shows how the Graphophone Co. makes its own hard disc-records. Paragraph 11 shows how the production of such records involves the invention covered by the four claims—7, 10, 17 and 18—here involved. The same subject is set forth by Jones (T., p. 41, fols. 122, 123) and by Cameron (T., pp. 46-48, 51-53). A cake of wax-like composition, Complainant's Exhibit "Wax-like Blank Tablet," is placed upon a turn-table under a suitable recording apparatus and sound-grooves are produced therein, as illustrated by Complainant's Exhibit "Engraved Wax-like Original." This original sound-record is then coated with finely-powdered graphite and placed in an electro-plating bath and subjected to the ordinary process of electro-plating. When the electro deposit is sufficiently thick it is removed from the wax-like original, as illustrated by Complainant's Exhibit "Matrix from Engraved Original." This matrix is then impressed into a tablet or disk of suitable "fibrous material," vulcanite, dura-

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hard disk sound-record, such as Complainant's Exhibit  
"Sound-Record from Engraved Original."

*The Original Wax-like Sound-record* is the very  
article covered by claims 7, 10, 17 and 18; and while  
the electro-plated matrix from such engraved original  
is not itself the article called for by the four claims,  
yet its production directly and of necessity involved  
the prior manufacture and use of the patented article;  
and, therefore, the unlawful making of such electro-  
plated matrix from an engraved original is an appro-  
priation of the patented invention, and is an infringe-  
ment. In like manner, while the ultimate commercial  
article, the hard disk sound-record, is not the article  
called for by the four claims, yet its production has  
involved the appropriation of the invention of our  
four claims, and if unauthorized is an infringement.

### **Our Hard Sound-Records Covered by the Claims.**

Counsel on the other side will argue that the  
Graphophone Co.'s original disk-records contain lat-  
erally-undulating grooves of uniform depth, instead of  
the vertical irregularities particularly described in the  
patent; and that, therefore, our original disk-records  
are not covered by the four claims. In reply, we repeat  
that this patent is THE PIONEER. During the sixteen  
and one-half years of its life, for at least nine of which  
it has been in continuous litigation, it has withstood  
the test of innumerable attacks; not one reference has  
ever been adduced to anticipate or restrict its claims,  
particularly the claims relating to the sound-record.\*

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\* The various patents and publications set forth in the West  
affidavit are all taken from the Answers filed by defendants in for-  
mer suits and have been considered by the Circuit Court. Every  
one of these citations was available to Mr. West in the Walcutt  
suit, and in fact, nearly all of them were set up in that suit and  
were discussed by his expert. We will produce the printed records  
in Court.



The language of the four claims does not require them to be limited to a record-groove having vertical irregularities in its bottom. Nor is there anything in the specification to require this limitation. On the contrary, the language of the specification plainly indicates that these claims covered both types of record.

(a) The Court is asked to compare claim 7 (one of those on appeal) with claim 8; these two claims are practically identical except where claim 7 (in suit) calls for

"narrow lines of irregular or varied form,"

claim 8 specifies

"lines of *variable cross section*."

By "variable cross-section" is meant that the cross-section is greater in one part of the line than in another part; in other words, that one part of the record-groove is deeper than another part, or is wider. This can mean only that the record-groove has vertical undulations caused by the stylus cutting more deeply or less deeply, as the case may be. On the other hand, the record-grooves of uniform depth and having lateral undulations (such as those involved on this appeal) are of *uniform cross-section*.

The fact that claim 8 differs as it does from claim 7 (and also from claims 10, 17 and 18), indicates that the latter claims are not limited to vertical undulations.

Bresnahan vs. Tripp Giant Leveler Co., 92 O. G., 2508; C. D. 1900, 356 (Court of Appeals, 1st Circuit).

(b) The patentees say that the

"invention consists, first, in the formation of the record \* \* \* by means of a *cutting* style \* \* \*" (line 15 of p. 1); that "it consists, secondly, in engraving or cutting a record in a *waxy* substance" (line 60 of p. 1); and that "the invention consists, thirdly, in "cutting or engraving the record in the form of a

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"groove with sloping walls, the sound-waves  
 "being represented by *elevations and depressions*  
 "at the bottom of the groove or otherwise" (lines  
 76-80 of p. 1).

This indicates that the inventive idea of cutting a record or of making it in a wax-like material is distinct from the inventive idea of having a record consist of vertical irregularities *at the bottom of the grooves*, and indicates that the claims are not to be limited beyond their plain meaning.

(c) The Court is also urged to observe what the patentees say in the passage last quoted, viz.: that their record may be represented by irregularities in the *bottom* of the grooves "or OTHERWISE." *How* "OTHERWISE"? Where else could the irregularities of the groove be except in its sides?

This means that while they proceed to specify vertical irregularities, they contemplate other forms and their claims are broad enough to cover both varieties.

(d) Again (p. 1, line 114 to line 3 of p. 2), the patentees speak of a record in the form of a groove with sloping walls, but say their apparatus "may also be usefully employed in connection with *other* forms of record."

Again, on page 6 (lines 48-55), the patentees state that their invention is not limited, and that "parts of the invention may be used separately" (lines 46, 47 of p. 6).

The claims of a pioneer patent should be considered liberally, but we do not ask this; we merely ask that claims be considered *literally*. The scope of claims can be restricted only by the prior state of the art, or by the language of the specification. The prior state of the art is practically *nil*, and the specification so far from serving to restrict our claims actually shows that they cover both the two forms of record.

The four claims are not limited to a groove having vertical irregularities in its bottom, but cover *any* sound record consisting of a solid body having its surface cut or engraved with narrow lines of irregular



form corresponding to sound waves (claim 7); they cover any sound-record cut or engraved in any wax-like composition (claim 10); they cover any sound-record cut in wax-like composition in the form of an irregular groove with sloping walls (claims 17 and 18).

Up to this point, the production of *complainant's* hard disk records, we have made it plain that the Court below did not err in holding that our own records are made under our patent. This cannot be seriously disputed. Unless the Court of Appeals can say the Court below was *plainly mistaken*, unless a palpable error is manifest, the finding of the Court on this point will not be reversed.

### Only Two Methods Known.

Jones (T., p. 40, fol. 118) and Cameron (T., p. 49, fols. 144, 145) tell us that only two practical methods have so far been evolved for producing zigzag sound records in a commercial manner. One of these is the system employing the engraving step and the engraved original sound record above described, which will hereafter be called the "engraving system"; and the other the Berliner or Gramophone system, in which the distinctive step consists of an *etching* process, and which will be called the "etching system." Each of these two system leaves in or upon the ultimate hard disk record produced by it certain characteristic peculiarities that show clearly and conclusively which one of the two processes was employed in making that article (Jones, T., p. 40, fol. 118; Cameron, T., pp. 50, 51, fols. 150, 151).

### The Engraving System.

The cake of wax-like composition which is to receive the record is liable to become a little warped on its upper surface and, therefore, it must be turned or pared perfectly smooth before the original record is

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recorded in it (Jones, p. 41; Cameron, p. 46; Cheney, p. 116, Q. 18 *et seq.*). The marks of this paring action, made by the turning-tool, are plainly apparent upon the surface of the tablet (see Complainant's Exhibit Wax-like Blank). The record is then cut or engraved in the tablet thus prepared, the thin spiral lines which constitute the sound-record proper forming an annular band upon the tablet, as seen in Complainant's Exhibit Original Record. In this second exhibit the marks of the turning-tool are still visible. The surface of this second exhibit is afterward rendered electro-conductive (as by a coating of graphite) and is then placed in the ordinary electro-plating bath to receive a metal deposit which constitutes the matrix, Complainant's Exhibit Matrix from Engraved Original. This third exhibit still retains the markings which indicate the track of the turning-tool. This matrix is then impressed into a disk of hard material to produce the hard disk records, Complainant's Exhibit Sound-record from Engraved Original. This fourth exhibit still perpetuates the central markings produced by the turning-tool. These markings show that at an earlier stage of the process the surface of the material was pared or turned perfectly true upon a turn-table by means of a cutting or paring device, and that such material had been cut by the recording-stylus. In other words, the presence of these central markings demonstrates that the production of this exhibit record involved the engraving system.

In the second place, complainant's records contain lettering giving the title of selection, etc. This lettering was produced on the original wax-like disk or tablet by means of a *heated* stencil or stamp. The effect of this treatment was to depress the "wax" beneath the stencil and raise it slightly around the margin, to produce a smooth and polished bottom or floor and a marginal ridge around the same. These two peculiarities are repeated (in reverse) in the matrix and perpetuated in the black disk-record (Jones, p. 42, fol. 125). So that the presence upon the



hard disk-record of comparatively deep lettering characterized by a smooth floor with slightly raised margin, indicates conclusively that the production of such article was produced by the "engraving system" and its production involved a wax-like original.

### Etching System.

In the etching system a zinc plate was employed having its surface buffed and polished to a high lustre (see Complainant's Exhibit Zinc Plate for Etching). This surface was covered with an infinitesimal film of fatty "resist" to protect the metal from acid. The record of sound was then *traced* in this fatty film, and the zinc plate subjected to the etching bath. The acid attacked the metal where the film had been removed, and etched the lines into the plate. This particular exhibit is quite old, it has been knocking around the work-shop some seven years, but the original smoothness and lustre of its central field is still observable. This central field, however, is absolutely free from any concentric markings that would indicate a paring action upon the turn-table. The etched plate was then electro-plated in the usual manner, and the electro-plate impressed into the hard disk as already explained. The hard disc record made by the etching system will, therefore, have a perfectly smooth and lustrous central field, free from any concentric markings (see Complainant's Exhibit Old Gramophone Record).

In the second place the lettering of these Berliner records was produced upon the original zinc plate by pressing the stencil or stamp upon the filmy "resist" before the plate was subjected to the acid bath. As a result, the lettering is shallow, and with a rough or pitted appearance (see Complainant's Exhibit Etched Plate). This appearance of the lettering was repeated in the matrix and perpetuated in the ultimate hard record (see Complainant's Exhibit Old Gramophone Record).

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### The Distinctions.

A hard disc-record having :

(a) Concentric markings upon its central field, and with

(b) comparatively deep lettering with polished floor and slight marginal ridges, must have been produced by the engraving system and not by the etching system. These are *the only two practical methods known commercially*. Now the two Exhibit Zonophone Records have

(a) the concentric markings in their central field and

(b) their lettering is characterized by the deepness, smooth bottoms and slight marginal ridges.

Which of the two methods was employed in producing defendant's zonophone records is obvious. The Court below was satisfied that our engraving system had been appropriated. In reply to this question defendant admits that its records are produced by stamping from an electro-plated matrix, and that this matrix has been electro-plated upon an original record, consisting of a "soft composition composed mainly of tallow and other ingredients" (Cheney, T., p. 102, fol. 304), and that the style is embedded into the tallow composition to produce their sound grooves (T., p. 119, Q. 35), etc.

This affirmative evidence, taken in connection with Cheney's evasive replies and his refusal to answer "many questions quite crucial in their character" (T., p. 168, fol. 502), satisfied the Court as a matter of fact that defendant's disk sound records are produced in the same manner as complainant's; and, therefore, the Court determined, as a matter of law, that the same were infringements and should be enjoined.

Now as to considering that defendant's records are



made by the same system as complainant's, this being a *question of fact*, an Appellate Court will not reverse the trial Court unless there is no evidence at all to support it, or unless it is plainly or indisputably contrary to the weight of the evidence. In fact, as to questions of *fact* considered by the trial Court, the appellant must establish error beyond a reasonable doubt.

"The finding of the Court below on conflicting testimony has the force of a verdict, and will not be disturbed on appeal."

Jeffries vs. Metropolitan Life Ins. Co., 101 U. S., 305.

Hewitt vs. Campbell, 109 U. S., 103.

Latta vs. Granger, 167 U. S., 81.

We have already demonstrated, as a question of legal construction, that the production of *our own* disk records involves the invention of the four claims on appeal; we have satisfied the Court below, as a question of fact (conclusive on this Court), that the defendant's disk records are made in the same manner as our own; therefore it must follow conclusively that the defendant's sound records are produced in infringement of our patent claims, and the Court below has not abused its discretion in granting the injunction.

### Cheney's Refusal to Answer.

Defendant's record-maker, Mr. Cheney, in many places refused to answer questions quite crucial in their nature, and we would refer the Court to the following passages throwing light on his *ex parte* denial of infringement, to wit: T., p. 114, Q. 5; p. 115, Q. 11; p. 116, Qs. 18-21; p. 119, Qs. 32-36; p. 120, Qs. 40-43; p. 121, Qs. 49-52, Qs. 54, 55; p. 123, Q. 66; p. 125, Qs. 82-84; p. 131, 125, 126 (see Q. 119); p. 134, Qs. 145-149; p. 136, Qs. 168, 169; p. 137, Qs. 172-173; p. 140, Qs. 196, 197; p. 145, Qs. 238-240; p. 146, Q. 243; p. 147, Q. 251 through Q. 259 on p.

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p. 120, Qs.  
123, Q. 66;  
Q. 119); p.  
p. 137, Qs.  
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259 on p.

149; p. 150, Qs. 264-269; p. 153, Qs. 283-286; p.  
154, Q. 293 through 295 on p. 155; p. 155, Qs. 299-  
303 (read with Q. 3 and Q. 6 on p. 114, and fol. 302, p.  
101); p. 158, Qs. 321-324; p. 159, Qs. 328, 329, 332,  
333; p. 160, Q. 335 through Q. 346 on p. 161; p. 162,  
Q. 351; p. 163, Qs. 360-362 (read with fol. 303, pp.  
101, 102); p. 164, Qs. 372-375.

The witness having refused to answer most of the  
foregoing questions, cannot complain if the natural in-  
ference—infringement—be unfavorable to him.

"The effect, however, which should be given to  
the evidence may depend not only on what is  
averred, but also upon what is unsaid. \* \* \*  
Defendant being the only one who knows the con-  
struction of the machine, his information is neces-  
sary, since a disclosure would either corroborate  
him or corroborate the complainant. He has with-  
held the details, and may not complain if we are  
compelled thereby to draw inferences unfavorable  
to his assertion."

Wilson vs. Keely, 43 O. G., 511; C. D.  
1888, 599.

See, also,

Diamond Match Co. vs. Oshkosh Match  
Works, 69 O. G., 1508; C. D. 1894, 665;  
63 F. R., 984.

Coop vs. Dr. Savage Inst., 47 F. R., 899;  
48 F. R., 239.

Johnson S. S. R. Co. vs. North Branch Co.,  
48 F. R., 195.

Edison El. L. Co. vs. U. S. Co., 44 F. R.,  
294; also 45 F. R., 57.

Natl. Hollow Brake Co. vs. Interchl. Brake-  
Beam Co., 83 F. R., 26.

Colgate vs. French Tel. Co., 23 F. R., 82.

Delamater vs. Reinhardt, 43 F. R., 76.

Dornan vs. Keefer, 58 O. G., 1093; C. D.  
1892, 282; 49 F. R., 462.



### Is Defendant's Record Too Soft?

Appellant will contend that his original record is too soft for direct reproduction, and therefore is not covered by our claims. To this we make four replies.

(a) The evidence that this original record is too soft to be reproduced directly by defendant's "sound-box" is the *ex parte*, we may say the *ex cathedra*, statement of the interested party Cheney. On the other hand, we find that his recording material is a plate or tablet (Q. 11, p. 115); that its surface has to be smoothed (Q. 18 *et seq.*); that this cake or plate is subsequently placed in an electro-plating bath (Q. , p. ). He declines to state whether his material is softer or harder than cocoa butter or stearine (Q. 345, Q. 328). He says that while he is making his record he keeps his material *cool* (Q. 54, 55, p. 121). Furthermore, the appearance of the lettering on Complainant's Exhibit Zonophone Records indicates that a *heated* stamp has been impressed into the original tablet (Jones, p. 42, fol. 125). If his material was already so soft, there would be no need of heating the stamp. Finally, Mr. Cheney had in his possession an original record from which he had already obtained a copper-plate matrix (p. 102, fol. 306), which original record he offers to produce in Court. If this material was so soft as appellant would have us believe, it could not be preserved after the electro-plate matrix had been stripped away from it.

(b) Even if Cheney's tablet is too soft for direct reproductions by Cheney's "reproducer," it does not follow that it is too soft for reproduction by some other reproducer, our own for instance. The particular composition specified in the patent in suit, bees-wax and paraffine, is comparatively very soft.

(c) The patentees at the date of their patent recognized the softness of this material and contemplated

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obtaining electro-plates therefrom. See U. S. Letters Patent, No. 341,287, granted May 4, 1886 (date of the patent here set up), to Sumner Tainter (one of the joint inventors of the patent in suit), on page 1 thereof, lines 28-30.

(d) A patentee is entitled to all the uses to which his patented invention may be applied. Bell & Tainter are entitled to use their engraved records either for immediate and direct reproduction, or for obtaining electro-plated matrixes to impress the hard disk records, "By the well established rule of the Patent Law the inventor is entitled to all the usages to which his invention can clearly be put 'no matter whether he had conceived the idea of the use or not.'"

Roberts vs. Dyer, C. D. 1876, 439; 91 U. S., 150.

Ansonia Co. vs. Elec. Supply Co., C. D. 1892, 313; 144 U. S., 11.

Lovell Co. vs. Cary, C. D. 1893, 243; 147 U. S., 623.

Miller vs. Eagle, C. D. 1894, 147; 151 U. S., 186.

Hill vs. Hodge, C. D. 1898, 480; 12 App. D. C., 528.

Stow vs. Chicago, C. D. 1882, 131; 104 U. S., 547.

### Conclusions.

1. The patent is a pioneer, and the validity of claims 7, 10, 17, and 18 has been sustained.

2. We do not ask to have these claims broadened to include "equivalents," etc.; we ask merely to have them construed *literally* according to the specification and their plain terms.

3. The Court below did not err in holding that our own original disk sound records are covered by our claims.



4. Our hard disk sound records are produced by the system which necessarily involves the making and using of our patented original sound records engraved in the waxlike composition.

5. The Court below found, from the evidence, as a matter of fact that defendants' zonophone records were produced by the same system, likewise involving the manufacture and use of our patented original sound record engraved or cut or *gouged* (Patent, p. 1, line 33) in waxlike material.

6. This *finding of fact* should not be reversed except in a very plain case of abuse of discretion, even if it be not conclusive on the Appellate Court.

7. Defendant's records involve an infringement, and should be enjoined.

Dated New York City, November 10, 1902.

Respectfully submitted,

PHILIP MAURO,

C. A. L. MASSIE,

Of Counsel for Complainant.